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Measuring and Linking School Professional Learning Environment Characteristics, Teacher Self and Organizational Efficacy, Receptivity to Change, and Multiple Indices of School Effectiveness.

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MEASURING AND LINKING SCHOOL PROFESSIONAL LEARNING ENVIRONMENT CHARACTERISTICS, TEACHER SELF AND ORGANIZATIONAL EFFICACY, RECEPTIVITY TO CHANGE, AND MULTIPLE INDICES OF SCHOOL EFFECTIVENESS

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TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS	ii
LIST OF TABLES	ix
LIST OF FIGURES	xiii
ABSTRACT	xiv
CHAPTER 1: INTRODUCTION	1
Overview	1
Organizational and Individual Variables and Learning in Schools	8
Individual Learning Processes	8
Professionalism and Learning	9
Learning in School Environments	10
Individual Motivational Variables and Learning in Schools: Self Efficacy	12
Teacher Self and Organizational Efficacy	13
Receptivity to Change in Schools	16
Effectiveness in School Organizations	18
Organizational Effectiveness	19
School Effectiveness Research	20
Conceptual Framework of the Study	22
Model of School Change and Effectiveness (MSCE)	22
Statement of the Problem	26
Purpose	27
Significance/Importance of the Study	28
Study Variables	30
Conceptual and Operational Definitions	30
Independent Variables	31
Professional Learning Environment Elements	31
Teacher Self Efficacy and Organizational Efficacy	31
Teacher Receptivity to Change	32
Dependent Variables	32
School Organizational Effectiveness	33
School Productivity	33
School Holding Power	33
Research Questions	33
Primary Research Questions	34
Research Question 1	34
Research Question 2	35

Research Question 3 37
Research Question 4 39
Research Question 5 40
Research Question 6 40
Research Question 7 41
Research Question 8 42
Research Question 9 43
Supplemental Research Questions 44
Assumptions of the Study 46
Summary 47

CHAPTER 2: REVIEW OF RELATED LITERATURE AND RESEARCH 48
Introduction 48
Perspectives on Educational Reform and Change 48
Research on School Organizations and Change 54
Social Systems Theories and School Change 54
Research on Change in Schools 55
Research on Human Learning 58
Theories of Learning 58
Teacher Learning and Professionalism 60
Studies of Learning Environments 62
Conceptual/Theoretical Bases of Studies of Learning Environments 63
Learning Environment Research in Schools 68
Methods of Data Collection in School Learning Environments 70
Instrumentation for Assessment of Learning Environments in Schools 71
Research on Self and Organizational Efficacy 75
Conceptual/Theoretical Bases of Efficacy 75
Efficacy Research in Organizations and Schools 77
Research on Receptivity to Change 80
Perspectives and Research on Effectiveness in School Organizations 83
Organizational Effectiveness 83
School Effectiveness and Productivity Research 85
Summary 88

CHAPTER 3: DESIGN, METHODOLOGY AND PROCEDURES 89
Research Design 89
Independent Variables 89
Dependent Variables 89
Sample 90

Data Collection Procedures 91
Survey Data 91
Student Achievement and Attendance Data 92
Instrumentation 92
Professional Learning Environment Inventory 93
Instrument Development Activities 94
Validity 95
Reliability 96
Structure/Scoring 96
Teacher Self and Organizational Efficacy Assessment 97
Validity 99
Reliability 100
Structure/Scoring 100
Modified Receptivity to Change Inventory 102
Validity 102
Reliability 104
Structure/Scoring 104
Index of Perceived Organizational Effectiveness 105
Validity and Reliability 105
Structure/Scoring 106
Data Analysis 106
Descriptive Statistics 107
Factor Analyses 108
Reliability Statistics 110
Correlation Analyses 111
Summary 112

CHAPTER 4: SUMMARY OF RESULTS 113
Summary of Descriptive Statistics for Survey Sample 113
School Characteristics 114
Socioeconomic Status 114
Student Attendance 115
School Size 115
Student Achievement 115
Survey Response Rates 116
Characteristics of Nonresponding Schools 117
Participant Sample Characteristics 117
Summary of Descriptive Statistics for Instrument Items 118
The Professional Learning Environment Inventory (PLEI) 119
The Teacher Self and Organizational Efficacy Assessment (TSOEA) 119
The Modified Receptivity to Change Inventory (RCI) 120
The Index of Perceived Organizational Effectiveness (IPOE) 121

Summary of Results of Factor Analyses 122
PLEI Factor Analyses 122
TSOEA Factor Analyses 132
RCI Factor Analyses 137
Descriptive Statistical Summaries for Factored Instrument Subscales 140
PLEI Subscale Descriptive Statistical Summary 145
TSOEA Subscale Descriptive Statistical Summary 146
RCI Subscale Descriptive Statistical Summary 146
IPOE Descriptive Statistical Summary 147
Summary of Reliability Analyses 147
PLEI Reliability Analyses 148
Internal Consistency Reliability Analyses 148
Test-Retest (Stability) Analyses 148
TSOEA Reliability Analyses 152
Internal Consistency Reliability Analyses 152
Test-Retest (Stability) Analyses 148
RCI Reliability Analyses 153
IPOE Reliability Analyses 153
Results of Analyses for Primary Research Questions 154
Research Question 1 154
Research Question 2 155
Research Question 3 157
Research Question 4 160
Research Question 5 160
Research Question 6 161
Research Question 7 166
Research Question 8 168
Research Question 9 168
Supplemental Research Questions and Analyses 171
Supplemental Research Question 1 171
Supplemental Research Question 2 171
Supplemental Research Question 3 172
Supplemental Research Question 4 174
Supplemental Research Question 5 175
Supplemental Research Question 6 177
Summary 179

CHAPTER 5: CONCLUSIONS, DISCUSSION, and IMPLICATIONS 180
Overview of the Study 180
Major Findings and Conclusions 185
Development, Validation, and Reliability of the Professional Learning Environment Inventory (PLEI) and the Teacher Self and Organizational Efficacy Assessment (TSOEA) 185

Results of Bivariate and Multivariate Analyses 191
Bivariate Analyses 192
Multivariate Analyses 194
Units of Analyses 197
Discussion and Implications 198
Instrumentation 199
Conceptualizing a Model of School Change and Effectiveness 204
Methodological and Research Design Issues 211
Implications for Future Research, Theory and Practice 213
Summary 221

REFERENCES 223

APPENDIX A: INSTRUMENT SET USED FOR DATA COLLECTION AND ITEM LOCATION INDICES FOR ORIGINAL SUBSCALES OF THE PLEI, TSOEA, AND RCI 239

APPENDIX B: ITEM LOCATION INDICES FOR FACTORED SUBSCALES OF THE PLEI, TSOEA, AND RCI 249

APPENDIX C: DESCRIPTIVE STATISTICAL TABLES 253

APPENDIX E: DESCRIPTIVE STATISTICAL RESULTS FOR INSTRUMENT ITEMS 259

APPENDIX E: TESTS OF COMMON METHOD VARIANCE 266

VITA 277

LIST OF TABLES

Table		Page
1.	Summary of Factor Pattern Coefficients (1 Factor Solution) for the Professional Learning Environment Inventory (PLEI)	124
2.	Summary of Rotated Factor Structure Coefficients for the Four-Factor Oblique Solution for the PLEI	127
3.	Summary of Roted Factor Pattern Coefficients for the Four-Factor Orthogonal Solution for the PLEI	129
4.	Summary of Factor Pattern Coefficients (1 Factor Solution) for the Teacher Self and Organizational Efficacy Assessment (TSOEA)	134
5.	Summary of Rotated Factor Pattern Coefficients for the 3-Factor Orthogonal Solution for the TSOEA	136
6.	Summary of Factor Pattern Coefficients (1 Factor Solution) for the Modified Receptivity to Change Inventory (RCI)	138
7.	Summary of Rotated Factor Pattern Coefficients for a 2-Factor Orthogonal Solution for the RCI	139
8.	Summary of Instrument Subscale Descriptive Statistics for the PLEI, TSOEA, and RCI for Teachers in all Schools	141
9.	Summary of Instrument Subscales (PLEI, TSOEA, RCI, IPOE) for Teachers in Elementary Schools 142	
10.	Summary of Instrument Subscales (PLEI, TSOEA, RCI, IPOE) for Teachers in Middle/Jr. High Schools	143

11.	Summary of Instrument Subscales (PLEI, TSOEA, RCI, IPOE) for Teachers in Secondary High Schools	144
12.	Summary of Alpha Reliability Coefficients for all Subscales of the PLEI, TSOEA, RCI, and IPOE	149
13.	Summary of Intercorrelations and Alpha Coefficients for Items/Subscales of the PLEI and TSOEA	150
14.	Summary of Intercorrelations Between Scores on Subscales of the PLEI, TSOEA, RCI, and IPOE for all Schools	158
15.	Summary of Intercorrelations Between Scores on Subscales of the PLEI, TSOEA. RCI, and SADA and SACH Indices for all Schools	159
16.	Summary of Canonical Variate Analysis Results for Subscales of the PLEI and a Set of School Effectiveness Variables	163
17.	Summary of Canonical Variate Analysis Results for the Set of Subscales of the PLEI, TSOEA and the School Effectiveness Variable Set	165
18.	Summary of Bivariate and Partial Correlation Coefficients for Schools Between Subscales of the PLEI and the IPOE, Controlling for the Effects of TSOEA Variables	167
19.	Summary of Pearson Product Moment Correlations and Descriptive Statistics for the IPOE and Selected PLEI and TSOEA Subscales for Comparison Schools	169
20.	Summary of Partial Correlations Within Schools Between PLEI, TSOEA and RCI Subscales and Student Achievement, Student Attendance, and SES After Controlling for School Size	173
21.	Summary of Intercorrelations Among PLEI, TSOEA and RCI Subscales for All Schools	176

22. Summary of Descriptive Statistics and Within School Correlations for the BEV(PLEI) Subscale and the TPOE(TSOEA) Subscale for Selected Comparison Schools 178

A.1. Item Location Index for Original Subscales of the PLEI 246

A.2. Item Location Index for Original Subscales of the TSOEA 247

A.3. Item Location Index for Original Subscales of the Modified RCI 248

B.1. Item Location Index for Factored Subscales of the PLEI 250

B.2. Item Location Index for Factored Subscales of the TSOEA 251

B.3. Item Location Index for Factored Subscales of the Modified RCI 252

C.1. Profile of Sample by Personal and Professional Characteristics of Teachers 254

C.2. Demographic Characteristics of Participating Schools 257

C.3. Demographic Characteristics of Non-Participating Schools 258

D.1. Summary of Descriptive Statistics for Each Item and Total Instrument for the PLEI for Teachers in all Schools 260

D.2. Summary of Descriptive Statistics for Each Item and Total Instrument for the TSOEA for Teachers in all Schools 262

D.3. Summary of Descriptive Statistics for Each Item and Total Instrument for the RCI for Teachers in all Schools 264

D.4. Summary of Descriptive Statistics for Each Item and Total Instrument for the IPOE for Teachers in all Schools 265

E.1. Tests of Common Method Variance for the PLEI/OPLD and the IPOE 267

E.2. Tests of Common Method Variance for the PLEI/TAR and the IPOE 269

E.3. Tests of Common Method Variance for the PLEI/BEV and the IPOE 271

E.4. Tests of Common Method Variance for the TSOEA/TPSE and the IPOE 273

E.5. Tests of Common Method Variance for the TSOEA/CPE and the IPOE 275

LIST OF FIGURES

Figure		Page
1.	Model of School Change and Effectiveness	25
2.	Revised Model of School Change and Effectiveness	206

ABSTRACT

During the past two decades, several important lines of inquiry have been developed to study the complex organizational and learning environment features of schools. In addition, researchers, theorists and educational policy makers have become increasingly concerned about educational reform and change, and with establishing linkages between educational improvement efforts and the effectiveness of schools. The extant school effectiveness and effects literatures have primarily focused on student achievement as the school outcome/productivity variable of concern. Alternatively, the literature on the study of schools as organizations has primarily focused on the measurement of school organizational, cultural and environmental variables and linkages of these to the efficiency, adaptability and general productivity of schools as organizational units. This study addresses the need to develop more comprehensive, integrated conceptual frameworks for studying schools that utilize multiple indices of school effectiveness, and that link these indices to school organizational, environmental and personal variables.

Teachers (n=1041) drawn from fifty three schools in a large, urban/suburban school district in a southeastern state participated in the study. Survey data were collected using original measures of teacher self and organizational efficacies and characteristics of the professional learning environment of schools, and a revised measure of teacher receptivity to change. These variables were subsequently linked to multiple indices of school productivity, holding power and organizational effectiveness. The study variables were organized, and exploratory data analyses were completed in

view of a Model of School Change and Effectiveness (MSCE) specifically developed for the study.

Major results of the study showed that the measures of teacher efficacy and the professional learning environment characteristics of schools demonstrate adequate construct validity and reliability. Primary linkages in the MSCE were established between the teacher efficacy and learning environment variables and school organizational effectiveness, rather than student productivity (achievement) and school holding power (student attendance). The empirical structure of the teacher efficacy measure suggested that self and organizational efficacies become unitary teacher perceptions in view of a history of repeated school failures. Comparisons of results for between and within school analyses documented a series of important methodological and conceptual concerns for those pursuing research on schools as organizations and school effectiveness. The importance of integrating quantitative and qualitative methodologies and various units of analysis in future research to establish greater sensitivity to school context variables was noted. Implications of the findings for future theory development and research on schools and for integrating existing, multiple lines of inquiry on school effectiveness and effects were given.

CHAPTER 1: INTRODUCTION

Overview

The national focus on education during the past decade has resulted in many policy based initiatives aimed at improving education. Such emphasis by policy makers has succeeded in creating a general climate in education that has largely been characterized by perceptions of the need for school improvement and has resulted in numerous and often omnibus educational reform packages initiated at the national and state levels (Wang, Haertel, & Walberg, 1993). Historically, major educational reform movements in the United States have been characterized by short-lived, political endeavors initiated by forces external to schools which have left the larger educational context only slightly altered, and which have produced negligible changes in schools (Murphy, 1990). In response to a proliferation of various national reports concerning the state of American education (e.g., Equality of Educational Opportunity Study (1966) (Coleman report) (EEOR); A Nation at Risk,1983 (NCEE); A Nation Prepared: Teachers for the 21st Century, 1986 (CFEE); Time for Results, 1991; and most recently, America 2000, 1993, (U.S. Department of Education), federal and state governments have initiated a significant number of policy-based reforms during the past three decades. These thrusts have often been viewed as waves of reforms and shifts in themes have been evident across decades and foci for change have moved from surface-level concerns (e.g., materials, equipment) to systemic elements of school organization and structure (e.g., site based management, shared decision making, decentralization) (Cuban, 1988; Fullan, 1993; Murphy, 1989). These shifts in themes, combined with

the relatively short life of most policy initiatives have contributed to views of reform in education as largely a faddish enterprise. Such faddism has also, perhaps, been a result of the public quick fix mentality, which has been directed at curing the perceived educational ills of schools in response to competitive concerns among industrial nations. However, initiating frequent changes in policy to accommodate faddish innovations is a practice which is quite contrary to what is known about the gradualness of change processes in complex social organizations. When viewed retrospectively, however, the shift from first wave (surface level) to second wave (systemic) reforms, did seem to indicate the emergence of an apparent realization of the complexity and comprehensiveness of schools as social organizations and, thus, may have set the stage for consideration of the intricacies of change processes facing educators in schools for the 21st century (Fullan, 1993).

Studies of school change have typically focused on effectiveness of policy rather than on the complex issues associated with change processes in schools. Studies of organizational processes in schools have employed a variety of comprehensive organizational theories of open social systems (e.g., Bidwell, 1956; Etizoni, 1964; Getzels and Guba, 1957; Parsons, 1954), which have provided useful frameworks for investigation of complex interactions in schools as formal social organizations. For example, Getzel's and Guba's social-systems model of organizations has been particularly useful in understanding school organizational environments in terms of both institutional and individual dimensions and in explaining organizational behavior as an outcome of the interaction between these dimensions. Such interactions have provided

a basis for sociopsychological theories of group behavior in which individual roles and personality and organizational dimensions interact. Thus, behavior in a social system such as a school can be explained in terms of the interaction between role (expectations), and personality (internal need structure of an individual), or B=f(RxP). Organizational behavior is thus determined both by the needs and interactions of the institutional factors and individual factors. Such behavior is exhibited as the group responds to inputs from the environment (e.g., reform policy) which, in turn, contribute to system outcomes (e.g., school change and effectiveness). Thus, approaching studies of school change and effectiveness from a social systems theory perspective seems useful as elements of culture, climate, and personal and institutional factors interact to accept, reject, or absorb innovation attempts.

Other difficulties in research on school organizations have been noted, particularly studies of school change and reform, in attempts to generalize results of variable relationships across schools to predict or explain outcomes in ways that contribute to either theoretical or practical understandings of school organizations. For example, early school effectiveness studies, which were initiated largely in response to the Coleman (1962) report, first focused on school improvement and policy-responsive strategies for enhancing effectiveness (Richards, 1991). Perhaps, as a result of calls for equality of educational opportunity and greater equity and efficiency of services, early effective schools research pursued somewhat of a utilitarian strategy that was simply outcomes-based (e.g., Brookover & Lezotte, 1979; Edmonds, 1979; 1983; Rutter, et al., 1979, Weber, 1971, etc.). Thus, school level characteristics identified

in such studies as important school effectiveness variables were viewed unilaterally as prescriptions for success by practitioners and policy makers. However, there remained a diversity of conceptual definitions of effectiveness of schools among researchers. Thus, school effectiveness research largely remained in the practical arena and has been somewhat void of theoretical implications for schools as organizations (Scheerens & Creemers, 1989, 1990). In addition, much of this research tended to over-emphasize school effects, such as student achievement outcomes (productivity) in basic skills, without consideration of interactions of the social and political environments within which schools function (Wimpelberg, Teddlie & Stringfield, 1989) and the impact of social-systems interactions on change processes within schools. More recently, those working in the area of school effectiveness have discussed the need for multiple definitions of school effectiveness and linking these to "nested layers" of educational organizations (Purkey & Smith, 1983) and to micro (classroom), meso (organizational) and macro (environmental) levels of variables that effect school outcomes (Scheerens & Creemers, 1990).

School effectiveness research is but one example of studies of change and reform in school organizations which have largely addressed change effects or outcomes (Wang, Haertel, & Walberg, 1993). More recently, extensions of such studies have focused on change processes in schools as these reflect important interactions between individual and school organizational (contextual) variables (Teddlie, 1993; Wimpelberg, Teddlie & Stringfield, 1989). The importance of consideration of context has also been noted in a variety of other recent investigations that have attempted to establish linkages

between characteristics of schools as complex organizations and multiple indices of organizational and school effectiveness variables (Chauvin, 1992; Claudet, 1993; Johnson, 1991; Logan, 1990). Each of these studies has repeatedly reinforced a pattern of findings which suggest that school level variables can best be understood in terms of linkages to indices of school organizational effectiveness rather than in terms of their linkages to traditional indices of school effectiveness such as student achievement. In addition, findings suggest the importance of accommodation of school contextual effects in frameworks for studying school organizations.

Additional research has repeatedly shown that individual reactions of schools to change efforts has been quite diverse in terms of effectiveness of incorporation of planned change (e.g., Cohen & Ball, 1990; Darling-Hammond, 1990; Sikes, 1990). If such diversity in change efforts in schools seems to be the rule rather than the exception, then further studies of both organizational and individual variables which interact in the process of change within schools might be useful in the development of theoretical perspectives on characteristics of school learning environments that either facilitate and/or impede change and effectiveness.

Most importantly, as has been concluded in numerous recent studies of school organizational change and learning (Fullan, 1993; Fullan and Stiegelbauer, 1991; McLaughlin, 1990), it should be recognized that simply mandating policy is insufficient for insuring changes of value, since neither individual nor organizational change occurs without learning (i.e., learning requiring acquisition of new skills, creative thinking and changes in understanding). The recent focus on schools as total learning communities

(e.g., Brandt, 1992) has emphasized the importance of the process of learning for adults as well as for student community members. Though learning is often considered a highly individual process, it also occurs within a social context and may indeed be facilitated or impeded by certain characteristics and interactions within school organizational environments (Fraser, 1986, 1989; Fraser and Walberg, 1991). Thus, creating environments which encourage involvement of teachers in activities that are grounded in norms of professionalism and the ethics/values of professional practice, seems an important concern in supporting teacher learning in the change process. In addition, as Fullan (1991) suggests, emphasis on professional development for teachers that includes formal and informal learning experiences will allow for formulation of critical questions necessary for refining and building on successes. Such a focus on learning through professional development, may indeed facilitate meaningful school change and enhance organizational effectiveness since teachers have been seen to play a significant role in implementation of change efforts in schools (Cohen & Ball, 1990; Darling-Hammond, 1990; Firestone & Corbett, 1988).

Concomitant with the development of recent educational reform initiatives is an expanding research and theory base derived from studies of: 1) learning environments (Fraser & Walberg, 1991); 2) professionalization of teaching (Darling-Hammond & Goodwin, 1993); 3) change processes in schools and other organizations (Chauvin, 1992; Fullan, 1990, 1993; Fullan & Stiegelbauer, 1991); and 4) the role of self-efficacy in personal learning and change (Ashton & Webb, 1986; Bandura, 1977, 1978, 1981, 1982, 1986, 1993; Gibson & Dembo, 1984; Raudenbush, Rowan, & Cheong, 1992).

Considered collectively, these lines of inquiry well document that school environments and school change processes are far more complex than typically viewed by policy makers and the general public. Understanding variations of reform effects on school environments in terms of both individual and organizational factors seems important to advance theories of organizational change.

While each of the lines of inquiry mentioned above has stimulated considerable discussion and research in schools, few studies have attempted to examine relationships among these various personal and organizational variables in concert. In addition, no conceptual or theoretical frameworks presently exist that integrate these particular lines of inquiry into a comprehensive view of school learning environments, change and effectiveness.

This study was designed in response to the emerging literatures derived from the study of schools as organizations, school change and school effectiveness. It was designed as a conceptual and empirical extension of a variety of recent investigations that have attempted to establish linkages between characteristics of schools as complex organizations and social systems, and multiple organizational and school effectiveness variables (Chauvin, 1992; Claudet, 1993; Johnson, 1991; Logan, 1990). A conceptual model was developed to guide the study which links professional learning environment characteristics of schools to multiple indices of school effectiveness, with consideration of mediating influences of personal variables such as teacher self and organizational efficacy and receptivity to change. These constructs are conceptualized as nested within a larger set of constructs reflecting organizational change and professional learning.

The following sections include a brief overview of the literatures relative to each component of the conceptual framework that was used to guide the study followed by a description of the nesting of each component in the larger conceptual model, The Model of School Change and Effectiveness (MSCE). Presentation of conceptual definitions is followed by the series of primary and supplemental research questions derived from components of the model that were used to guide instrument development and data analyses in the study.

Organizational and Individual Variables and Learning in Schools

The conceptual model for this study assumes that meaningful, productive school change cannot occur without learning. Since learning is both an individual and social process, the impact of professional learning depends upon a combination of motivation (individual) and opportunity (environmental) factors (Fullan & Stiegelbauer, 1991). Thus, understanding professional learning in schools as a complex, social process is important to enhancing school change efforts and organizational effectiveness.

Individual Learning Processes

Given that learning in schools occurs in a context which involves both individual and social interactions, phenomenological theories of learning (e.g., Lewin's 1947 Field Force Theory) in which behavior is viewed as a function of the individual and the environment [B=f(P,E)] provide useful conceptual bases for investigations of learning. Such theories maintain that though learning remains a highly individual process, it occurs within a larger environment which consists of an individual's construction and interpretation of factors external to the self (Kelly, 1955; Levin, 1947). Thus,

professional learning in schools may be best understood through investigations of interrelationships among characteristics of individual (teacher) learning and characteristics of the school organization that serves as the environment for that learning. From this theoretical perspective, understanding individual (teacher) learning in schools may be an important variable in understanding change processes in school organizations.

Professionalism and Learning

A pool of diverse views regarding professional learning exists among educators and researchers. Conceptual definitions of professionalism in teaching seem unclear and most seem to be quite devoid of the concept of professional learning. For example, most educators and/or researchers tend to consider professionalism in terms of philosophical views of the nature of teaching and the teaching profession. Such views are replete with references to terms such as authenticity, empowerment, knowledge, informed judgement, reflective practice, flexibility, research in action, collegiality, individualism, autonomy, etc. Thus, views of professionalism in teaching (e.g., Darling-Hammond, 1993; Duckworth, 1988; Goodlad, 1990; Little, 1992; Shulman, 1987), though diverse, seem to collectively define professionalism in terms of function rather than being grounded in more theoretical bases such those underlying views of learning as a process of pedagogical reasoning and action. Such ideological views often fall short of accommodating the complexity of reasoning processes which involve use of higher levels of comprehension, transformation, instruction, evaluation, reflection, and formulation of new perceptions. Recently, however, Darling-Hammond and

Goodwin (1993) suggested that professionalism in teaching should not be considered an end state, but rather should be though of as a continuous process of defining and redefining goals. This view of professionalism as a process more closely parallels literature in psychology which defines learning as a process in a state of constant flux. Thus, learning may be an important component that has often been overlooked in studies of teaching as a profession and may be an important interactive element useful in defining professional school environments for teachers (Fullan & Stiegelbauer, 1991).

Learning in School Environments

Historically, studies of learning environments in schools have evolved from work as early as the 1920s in social psychology in an effort to understand the complexity of relationships between students and teachers and among students (Ellett, 1989). Most school learning environment research since this early initiation has centered on classroom environment variables such as climate, social behaviors, teacher personality influences on learning, etc. (Fraser, 1986, 1989; Fraser & Walberg, 1991). School environment research has received little attention as an avenue of inquiry as it has typically been associated with theoretical concepts such as leader behavior in the field of educational administration (Anderson, 1982; Fisher & Fraser, 1991). While leadership is definitely an important variable in school organizations, it defines but one set of individual and environmental interactions that occur relative to the totality of learning possibilities in the school environment.

Research on school environments has typically targeted specific features of schools or classrooms, such as climate, culture, or psychosocial characteristics. While

psychosocial elements and interactions within a school are important, these interactions collectively constitute only a small element of the larger professional environment for learning in schools. If, as Fullan (1991) contends, professional learning for teachers can be seen as a continuous process consisting of formal and informal opportunities for learning along with elements of personal motivation, then viewing learning environments from psychosocial perspectives alone may fall somewhat short of depicting the comprehensiveness of learning constructs in school professional environments. What seems needed for research on teacher professional learning in schools are less-targeted, more global measures of important school organizational environmental factors that support and enhance learning.

School environment characteristics which strongly focus on professional learning may be characterized by a variety of factors beyond psychosocial perspectives such as norms of communication for learning, emphasis on individual and group reflection, development of goal consensus and cultural norms and beliefs that emphasize learning, the availability of professional learning opportunities such as professional supervisory learning interactions, or group peer learning interactions that enhance learning equity for teachers, etc. Development of instrumentation to measure these more comprehensive extensions of school learning environment constructs seems needed. Measures currently available typically focus exclusively on elements of climate, culture such as psychosocial interactions. Thus, development of a comprehensive, professional learning environment measure which would serve to tap teachers' perceptions of opportunity and

motivational elements in the school environment considered necessary for effective professional learning and development (Fullan, 1991) is an important component in this study.

Individual Motivational Variables and Learning in Schools: Self Efficacy

Based on Lewin's (1947) theoretical implications that learning is mediated by an individual's interactions with and perceptions of the external environment, it seemed important in this study to investigate, not only opportunities for learning in the environment, but also, personal, motivational factors that are characteristic of individuals within the school environment, in order to understand the nature and complexity of learning in school organizations.

Research in psychology has suggested that beliefs of high efficacy enhance motivation (Bandura & Cervone, 1983), promote higher goal-setting behaviors, 1984), and influence persistence and commitment to goal accomplishment (Latham & Locke, 1986; Locke, Shaw, Saari & Latham, 1981; Mento, Steel & Karren, 1987). Bandura (1977) suggests that perceptions of competency can be manifest in motivational behaviors. For example, if an individual believes he/she is competent enough to execute a set of behaviors that will produce certain outcomes, he/ she is more likely to attempt to initiate the relevant behaviors and is likely to persist in activities (in spite of obstacles and/or failure) related to accomplishment of desired outcomes.

The efficacy construct seems to provide a useful framework for understanding organizational change and effectiveness as it relates to personal and organizational goal attainment in schools. High self or organizational efficacy, for example, is

characterized by motivation in terms of the degree of effort an individual (or collective individuals) is (are) willing to put forth toward goal attainment, degree of persistence toward that attainment in spite of obstacles, and degree of willingness to persevere and pursue additional goals in spite of failure (Wood & Bandura, 1989). In this study, measuring teachers' self and collective perceptions of motivation toward accomplishment of various types of school goals was deemed useful in providing information on efficacy as it impacts organizational learning and change in schools. Review of conceptual definitions and instrumentation developed to assess the efficacy construct in schools and other organizations provided a basis for the development of an initial instrument to measure efficacy motivational elements in this study.

Teacher Self and Organizational Efficacy

According to Bandura (1977, 1982, 1986, 1992), individual interactions and perceptions within any environment are often influenced by internal belief structures such as judgement of personal capabilities (self efficacy) which, subsequently effect an individual's motivation to organize and execute courses of action required to attain designated types of performances. Similarly, these personal perceptions and resulting actions are also influenced by factors in the environment, for example, member beliefs that the organization is capable of change and that members share in decision making relative to goal setting and direction of group performance (organizational efficacy) (Lawson & Ventriss, 1992; Wood & Bandura, 1989;).

A key self-perception construct posited as important to social learning is self efficacy. As conceptualized by Bandura (1977), self efficacy is an important cognitive

mediator of the acquisition and regulation of behavior and it is grounded in cognitive processes that lead to learning from the observation of response consequences. In describing how self efficacy mediates linkages between cognition and behavior, Bandura (1977) differentiates between "outcome expectancies" (an individual's estimate that a given behavior will result in a given outcome) and "efficacy expectations" (the belief that one can successfully execute a behavior to accomplish or produce an outcome). From this perspective, the self efficacy construct and efficacy expectations "determine how much effort people will expend and how long they will persist in the face of obstacles and aversive experiences." In addition, the personal efficacy construct is believed to encompass a personal competence/capability component that interacts with outcome expectancies. Thus, expectations alone will not produce desired performance if capabilities are insufficient. In addition, in describing the role of external incentives, Bandura states that "there are many things that people can do with certainty of success that they do not perform because they have no incentives to do so." Considered collectively, the personal efficacy construct provides a useful means to understand the motivation and behavior of individuals and groups within organizations.

Bandura (1977) also refers to efficacy dimensions of generality, magnitude and strength. Generality of the efficacy construct refers to the extent to which competency and motivational elements span a variety of situations; strength is reflected in perceived degrees of effort (relative to perceived competence and motivation) needed to accomplish tasks; and magnitude refers to perceived difficulty of tasks, given self perceptions of competency.

Teacher self and organizational efficacy have been investigated in a variety of studies (e.g., Ashton & Webb, 1986; Benz, Bradley, Alderman, & Flowers, 1992; Dembo & Gibson, 1984; Gibson & Dembo, 1984; Woolfolk & Hoy, 1990) and various instruments have been developed to assess teacher perceptions of self-efficacy as it pertains to teacher/student interactions at the classroom level (e.g., classroom behavior management) (Emmer & Hickman, 1991; Gibson & Dembo, 1984). Such instruments have been focused on situationally specific behaviors and instances, rendering inferences made from such measures difficult to generalize across multiple situations/instances.

In addition, there are few known studies that have investigated the constructs of self and organizational efficacy as each pertains to teacher perceptions and behaviors within the larger school professional learning environment. Lawson and Ventriss (1992) investigated the link between individual and collective perceptions of efficacy and change in public sector organizations. They posited that such efficaciousness can be enhanced at the individual and organizational levels when cultural changes involve the promotion of higher level organizational learning among members.

Thus, in order to further understand change and effectiveness in schools, it seems important to develop frameworks for investigating multiple indices of school learning environment characteristics which incorporate individual and organizational perceptions and interactions. Few systematic studies have been conducted to determine what specific change processes or personal variables (e.g., efficacy) may mediate the impact of organizational effectiveness and productivity (Offermand & Gowing, 1990). A recent study by Chauvin (1992), suggests that the personal variable of teacher

receptivity to change may indeed mediate change processes within schools as organizations as teachers adapt/adopt to either superficial and/or more meaningful cultural/normative change.

Receptivity to Change in Schools

Research on change efforts in schools (e.g., Fullan, 1990, 1993; Fullan, Bennett & Rolheiser-Bennett, 1990; Rossman, Corbett & Firestone, 1988) has focused on individual and collective attitudes and beliefs reflecting shared norms and culture. Information related to these cultural elements has provided a base useful in targeting planned change reform efforts (Corbett, et al., 1987; Hall & Hoard, 1987; Kaslow & Giacquinta, 1974; Waugh & Punch, 1985). These collective, shared norms and beliefs, unique to the school professional learning environment, may be either consonant or in conflict with planned change in schools. Thus, the more in conflict change efforts are with cultural norms and beliefs, the greater the individual and thus organizational (collective individual) resistance to the change and the less likely that goals of the effort will be reasonably met (Corbett et al., 1987; Deal, 1990; Rossman, et al., 1988).

Fuller, Wlld, Rapoport & Dornbusch (1982) have related teacher receptivity to change to teachers' self-perceptions of efficacy. They have also suggested that understanding the relationship between teacher perceptions of organizational (interactive or group) and performance (individual) efficacy and receptivity is important in interpreting the effectiveness of change at the school level. For example, if the perception of impact of change efforts impairs either the individual or the organization's ability to perform or accomplish goals, then the potential for negative reactions and

resistance to the innovation is present (Chauvin, 1992, Fuller, et al., 1982). Similarly, Sarason (1971), in discussing school culture and change, points to the existing "regularities" in school life as ingrained patterns of behaving and believing based on the existence of both sacred and profane norms. Durkheim (1965) defines sacred norms as essentially immutable, efficacious and enduring thus, they are less susceptible to change. Profane norms, on the other hand, represent the transitory side of everyday life and thus are more susceptible to change as they are in a state of temporary adjustment and are continuously being redefined. Thus, Corbett, et al. (1987) asserts that a planned change must be able to co-exist with existing cultural norms, or that existing norms (particularly the sacred) must change in order for the innovation to become meaningful in the school environment. It follows that teachers may be most resistant to a planned change effort if it is perceived to violate the sacred norms of the school culture, may be highly resistant to professional learning as it pertains to elements of the effort, and may be unwilling to put forth energies to attain goals related to the effort if they perceive that such obstacles prevent goal accomplishment.

Factors that contribute to an individual's degree of receptivity to planned change include, not only beliefs, attitudes, and norms in the organization, but perceptions of economic "costs" in terms of time, money and effort, and socio-political context issues and interactions (Corbett, et al., 1987; Elmore, 1987; Waugh & Punch, 1985). Waugh and Punch (1985) found that overall feelings about a change which are formed as a result of all perceptions, influence behavior intentions. However, actual behavior, such as in forced compliance, may not always parallel receptivity to a change effort. For

example, a school may appear to implement an innovation (e.g., a cooperative learning curriculum) by making changes in some of the easily alterable profane norms (e.g., the use of new materials). However, changes in sacred norms (e.g., attitudes about student learning) are not evident (learning and productive change have not occurred) and ways of doing things proceed in much the same way as was evident prior to implementation of the innovation.

Considered collectively, results of studies of planned change suggest that teachers' receptivity to change in schools can be understood in terms of their beliefs about the degree to which the change will alter established norms and the degree to which each individual perceives that he/she can be effective in carrying out the change without extreme economic or socio-political costs. Since meaningful change does not appear to take place without new learning (McLaughlin, 1990), it seems important to understand the role of professional learning in schools in order to facilitate school change processes.

Effectiveness in School Organizations

The conceptual bases for this study are grounded in research and beliefs that change in schools cannot occur without learning. Underlying these beliefs is the assumption that productive change through new learning ultimately enhances school effectiveness. There exist, however, multiple conceptual definitions of school effectiveness and multiple indices of determining such effectiveness. The following sections overview conceptual bases of organizational effectiveness and typically-used school effectiveness constructs.

Organizational Effectiveness

Theoretical approaches to school organizational effectiveness have largely been centered around use of either goal models or systems resource models. Within these models, there are a variety of criteria that might be used to examine linkages between school environment/organizational variables and effectiveness. Therefore, as Hoy and Miskel (1987) suggest, to ask a global question about whether a school is effective or ineffective is virtually a useless exercise since any organization might be either effective and/or ineffective depending on the effectiveness criteria used.

One model which has been quite useful in understanding school organizational effectiveness was initially developed by Paul E. Mott (1972). Mott's model of organizational effectiveness is based on outcomes consistent with the integrated goal-system resource model of social systems derived from the Parsonian (1953) framework. His model satisfies the four basic problems of adaptation, goal attainment, integration and latency that Talcott Parsons describes as essential for all social systems if they are to grow and develop (Parsons, Bales, & Shils, 1953). Components of his model include the quality and quantity of the product, efficiency, adaptability, and flexibility. In his model, the five components determine the ability of an organization to mobilize its centers of power for action to achieve goals and to adapt. Thus, according to Mott's model, an effective school organization produces a higher quality of product, generates more positive attitudes, adapts better to environmental constraints, and deals more potently with internal problems (Hoy & Miskel, 1991).

Instrumentation originally developed by Mott for use in a variety of organizational settings was later modified for studies in schools (Miskel, Fevurly, & Stewart, 1979; Miskel, Bloom, & McDonald, 1980). Research using The Index of Perceived Organizational Effectiveness (Miskel, Fevurly, & Stewart, 1979) indicates that school effectiveness is greater when climate is open and decision making is decentralized (Claudet, 1992; Johnson, 1990; Logan, 1989; Miskel, Bloom, & McDonald, 1980; Miskel, Fevurly, & Stewart, 1979). Thus, the constructs inherent in Mott's model and this measure seem appropriate for use in investigating relationships in this study between characteristics of a school professional learning environment (which includes climate variables) and indices of organizational effectiveness.

School Effectiveness Research

Along with the plethora of national and state pushes for educational reform and change in schools as a result of (particularly) the Coleman, et al. (1966) and subsequent reports (e.g., Jencks, et al. 1972; Mosteler and Moynihan, 1972) confirming Coleman's findings that "schools don't make a difference," a body of research on school effectiveness which was largely atheoretical, practitioner-oriented and prescriptive began to emerge during the 1970s (e.g., Brookover & Lezotte, 1979; Edmonds, 1979, 1983; Rutter, et al., 1979; Weber, 1971, etc.). Following somewhat of a utilitarian strategy, early studies of school effectiveness identified indicators that were often communicated as formulas for school change and success. Five key factors emerged as school effectiveness indicators from this initial research: 1) strong instructional leadership by principals; 2) high expectations for student achievement; 3) a safe and orderly school

climate; 4) clear instructional goals; and 5) frequent use of student achievement data to evaluate program success (Edmonds, 1979; General Accounting Office, 1989; Weber, 1971). School level characteristics found in some inner-city schools that substantially decreased basic skill achievement differences among socioeconomic groups were the basis for the formula but, generalization of this model to schools with differing characteristics has been questioned (e.g., Berry and Ginsberg, 1991; Good and Brophy, 1986; Purkey and Smith, 1983).

Historically, school effectiveness research has been fraught with multiple methodological, conceptual, measurement, and consideration of context problems (Good & Brophy, 1986; Hoy & Ferguson, 1985; Purkey & Smith, 1983; Ralph & Fennessey, 1983; Rowan, Bossert & Dwyer, 1983; Scheerens & Creemers, 1989; Teddlie & Stringfield, 1993; Wimpelberg, Teddlie & Stringfield, 1989). Given these difficulties it seems that further research may be needed to extend studies of school effectiveness to include consideration of within school variability, situational and school psychsocial context factors, and interactions of personal and organizational variables mediating school outcomes.

Despite the difficulties that have been evident in the use of school effectiveness indices such as student outcome variables of achievement and productivity to determine the success of schools, these indicators remain important thermometers of school effectiveness for policy makers and the general public. This study attempts to integrate these variables in a model for school change and effectiveness, recognizing that such

variables are often influenced by factors external to the school organization (e.g., the educational quality of the home environment).

Conceptual Framework of the Study

This study addresses a need in the learning environment and school organizational effectiveness literatures for a conceptual framework useful in understanding complex organizational and individual mediating relationships between a new school professional learning environment construct and multiple indices of school effectiveness. A conceptual model, which is explained in the following section, was developed to organize linkages among major variables in the study.

The Model of School Change and Effectiveness (MSCE)

A conceptual framework was developed for this study that served to organize and conceptualize linkages among school learning environment constructs, teacher personal constructs and multiple indices of school organizational effectiveness and productivity. Mediating linkages among these relationships and the constructs of teacher self and organizational efficacy and receptivity to change were posited. The model is based upon a set of assumptions that suggest that : 1) the school is a total learning community and learning environment that is influenced by internal and external factors; 2) change in schools requires new learning and high self efficacy of individual organizational members and high organizational efficacy among members of the school; 3) changes in school organizational effectiveness are necessary but insufficient conditions for increasing school productivity (e.g., student achievement) and holding power (e.g., student attendance); and 4) meaningful school change and resultant

organizational and school effectiveness occur best in school-wide learning environments that are grounded in social norms of professionalism and the ethics/values of professional practice.

The conceptual model was developed as a framework for understanding school change and is not intended as an effectiveness or productivity model. Indices of effectiveness, productivity and holding power are integrated in the model as proxy measures of learning and effectiveness as they are related to change in schools.

According to the model, meaningful and effective change cannot occur in the absence of new learning. Learning in schools can be facilitated in the school professional environment through communication of cultural norms and beliefs that emphasize factors such as professionalism and learning equity, individual and group reflection, supervisory interactions targeting reciprocal learning, and by provision of opportunities that enhance learning for all members. Learning and change in schools can also be mediated by personal variables such as teachers' perceptions of efficacy and receptivity to change which may affect goal attainment as it pertains to change efforts.

Figure 1 illustrates the original Model of School Change and Effectiveness (MSCE). The model assumes that adult learning, though a highly individual process, occurs with a larger environment which consists of an individual's construction and interpretation of factors external to the self (Kelly, 1955; Lewin, 1947). In addition, learning in organizational settings is considered to be mediated by a host of personal construct variables such as self efficacy (Bandura, 1977) and receptivity to change (Chauvin, 1992; Hennigar, 1979;). Thus, learning in social organizations is a

contingent, social process which occurs through interactions among characteristics of individuals, and factors, events, and conditions in the total school environment.

The MSCE focuses on the adult community of learners in schools and depicts primary linkages among opportunity, structural and global cultural elements of the professional learning environment in schools and multiple indices of school effectiveness. Professional Learning Environment Elements, as illustrated in Figure 1, consist of Structural and Learning Opportunity Elements which are part of the larger Cultural Elements in the environment. School Effectiveness Concepts consist of Organizational Effectiveness Elements, School Holding Power Elements (Student Attendance) and Student Productivity Elements (Student Achievement). Primary linkages are indicated in Figure 1 by solid arrows between Professional Learning Environment Elements and School Effectiveness Elements. These primary linkages are thought to be mediated by interactions of personal, motivational variables (Teacher Self and Organizational Efficacy) and attitudinal variables (Receptivity to Change). Mediating linkages are indicated in Figure 1 by a dotted line surrounding the shaded portion of the model which depicts these personal and attitudinal variables. Conceptual definitions for these study variables are presented in a subsequent section of this chapter.

In order to examine linkages among variables in the MSCE, it was necessary in this study to develop two new measures: 1) The Professional Learning Environment Inventory (PLEI) (Appendix A) to examine characteristics of the school professional

Model of School Change and Effectiveness

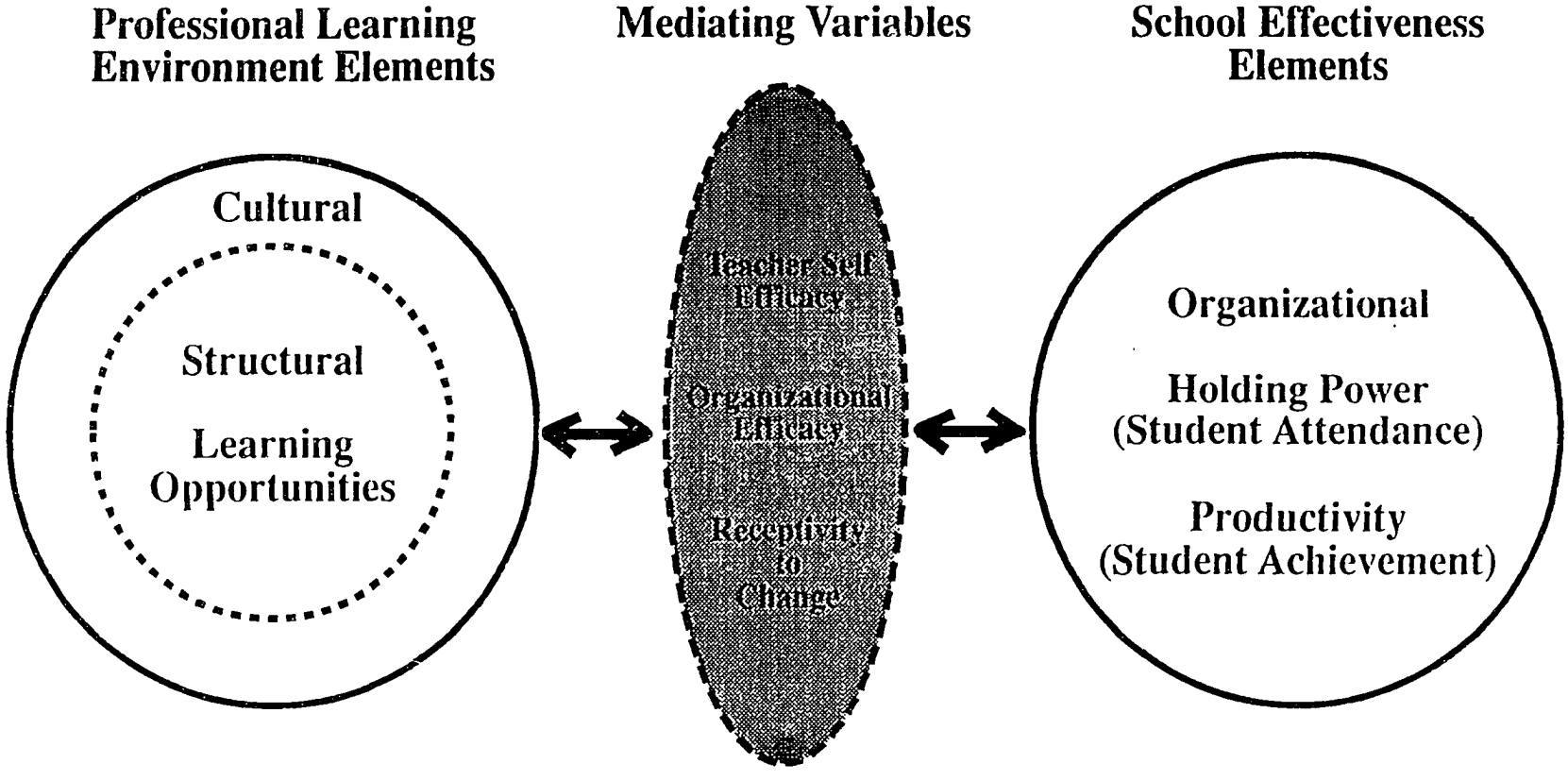

Figure 1: Initial Model of School Change and Effectiveness

learning environment; and 2) The Teacher Self and Organizational Efficacy Assessment (TSOEA) (Appendix A) to examine motivational constructs related to teacher self and organizational efficacy. Reviews of existing measurement literatures failed to identify useful measures for professional learning constructs in school environments, though elements of this learning construct were evident in instruments previously designed to assess other school organizational variables (e.g., Claudet, 1993; Logan, 1990). In addition, no instruments related to the study of teacher efficacy from an organizational perspective were found that were considered useful in this study. Therefore, important activities in this study included the development of original instrumentation to measure key constructs reflected in the MSCE, and the subsequent examining of the psychometric properties (validity and reliability) of these instruments.

Statement of the Problem

Concomitant with the development of recent education reform initiatives has been an expanding research and theory base derived from studies of the professionalization of teaching, school learning environments, change processes in schools and other organizations, schools as formal/informal organizations and school organizational effectiveness, the role of self-efficacy in personal learning and change, perceptions of organizational efficacy and change, school organizational effectiveness, school productivity, effectiveness and achievement, and school holding power. While each of these lines of inquiry has stimulated considerable discussion about schools and research in schools, no studies are known that attempt to examine the complex relationships among these variables in concert. In addition, no conceptual/theoretical

frameworks are available that integrate these particular lines of inquiry into a comprehensive view of school professional learning environments, change and organizational effectiveness. This study is an attempt to fill the void. Furthermore, much has been discussed in the literature about professionalization of teaching and the importance of professional learning for teachers in schools (Darling-Hammond, 1990; McLaughlin, 1990). Some recent attempts (e.g., Cheng, 1993; Claudet, 1993; Johnson, 1991; Logan, 1990;) have been made to establish quantitative linkages between school organizational/cultural variables and multiple indices of effectiveness. However, little empirical research has been completed and no studies are known that have attempted to link teacher professional learning to multiple indices of school effectiveness. In addition, no instruments exist to measure characteristics of professional learning in school environments. Similarly, while much has been written about the importance of the self efficacy construct as a mediator of human learning, few studies have been completed to examine teacher self and organizational efficacy and their linkages to school effectiveness. Perhaps, because instrumentation specifically designed to measure these efficacy constructs on a wider, school organizational level is non-existent. Though measures to examine teacher receptivity to change exist, little is known about how receptivity is linked to teacher, professional learning, self and organizational efficacy, and school effectiveness.

Purpose

This study is an exploratory study and its purpose was four-fold. First, a conceptual framework was developed to link the global construct of professional

learning environment to multiple indices of school effectiveness and productivity through the mediating variables of teacher efficacy and receptivity to change. Second, original instrumentation was developed to measure the professional learning environment characteristics of schools and motivational elements of teacher self and organizational efficacy. Third, linkages between variables in the conceptual framework were examined. A fourth purpose was to examine new teacher personal and school organizational variable linkages to multiple indices of school effectiveness to further inform a proposed model of two-stage, two-level theory development in schools (Claudet, 1993).

Significance/Importance of the Study

The study is important and significant from a variety of empirical, theoretical, and practical perspectives. First, a psychometrically sound means of measuring selected elements of the professional learning environment in schools was developed. Though the existing literature on the study of learning environments at the class level is rather rich (Anderson, 1982; Fraser, 1986. 1989; Fraser & Walberg, 1991), there have been comparatively fewer studies of school learning environments (Fraser & Walberg, 1991). Within the recent context of debate about professionalization of teaching (Darling-Hammond & Goodwin, 1993), conceptually linking professional perspectives in schools with learning concepts seems to be a new and unique contribution to studies of school learning environments. This study attempts to merge these important fields of inquiry and debate through the development of a

psychometrically sound measurement system of professional learning environments in schools.

Similarly, the construct of self-efficacy has received considerable attention in the literature in education (teaching efficacy in the classroom) (Emmer & Hickman, 1991; Gibson & Dembo, 1984) and psychology (Bandura, 1977, 1982, 1986, 1992; Bandura & Cervone, 1983). However, the construct of organizational efficacy as related to higher level organizational learning has received somewhat less attention in the literature in education and studies of formal/informal organizations (Lawson & Ventriss, 1992; Offermand & Gowing, 1990). No known efforts have been made to define the meaning of these constructs within the broad context of the professional life of teachers in schools, and no known means exist to systematically measure these global, motivational efficacy constructs as they relate to the total school environment.

The study is also important and significant because it integrates in a single study, recent inquires to link important school organizational variables and receptivity to change to multiple definitions of school effectiveness (Logan, 1989; Chauvin, 1992; Claudet, 1993).

A significant contribution of the study is broadening our understanding of the efficacy construct as it applies to schools; and differentiating teacher self efficacy from school organizational efficacy. The opportunity to explore how these variables are related to teacher, professional learning in schools and to multiple indices of school effectiveness is also unique to this study.

From the theoretical perspective, the study yields information important for continuing to develop a conceptual model useful for understanding complex relationships between a new professional learning environment construct and multiple indices of school effectiveness. This study is one in a series of studies designed to establish linkages between characteristics of schools as complex organizations and multiple indices of organizational and school effectiveness variables (Chauvin, 1992; Claudet, 1993; Johnson, 1991; Logan, 1990). In addition, the variables investigated can provide new insights about teacher personal and school learning environment constructs and their linkages to school effectiveness indices. And, within school analyses provide a useful means of furthering the development of theories of schools as complex organizations.

From more practitioner-oriented and policy making perspectives, this study can provide information about how professional learning environments might be structured to enhance teacher self-efficacy, positive/meaningful school change and subsequent school organizational effectiveness and productivity.

Study Variables

Conceptual and Operational Definitions

This section presents conceptual and operational definitions of the independent and dependent variables in the study. The sections that follow first provide conceptual definitions followed by operational definitions for the major study variables. The instrument set developed for use in the study is included in Appendix A.

Independent Variables

Professional Learning Environment Elements: Professional Learning Environment Elements are defined as factors/events/conditions that exist in the school environment that have the potential for enhancing teacher professional learning. Examples of these elements include learning opportunities in the school environment (e.g., opportunities for teachers to observe in other teachers' classrooms), cultural elements of the school environment (e.g., norms, values and beliefs that support professional learning), and structural/communicative elements of the school environment that support/enhance professional learning (e.g., administrators and teachers frequently discuss ways to accomplish school goals).

The Professional Learning Environment Elements are operationalized by teacher scores on subscales of the Professional Learning Environment Inventory (PLEI) (Loup, Ellett, Hill, 1993) (Appendix A) developed for use in this study.

Teacher Self-Efficacy and Organizational Efficacy: Teacher self-efficacy is defined as teacher personal judgement of motivation (effort and persistence) to achieve various organizational goals which is based on perceived personal capabilities to organize and execute courses of action required to accomplish goals. Organizational efficacy is defined as teacher judgements of colleagues'(other teachers') collective motivations (effort and persistence) to accomplish various types of organizational goals. The motivational elements of the efficacy construct reflect teacher perceptions of: 1) degree of initial effort/task persistence; 2) persistence in face of uncertainty and in

overcoming obstacles/barriers; and 3) willingness to persist in the pursuit of future goals in spite of repeated failure.

Teacher self-efficacy and teacher organizational efficacy are operationalized by teacher scores on the subscales of the Teacher Self and Organizational Efficacy Assessment (TSOEA) (Loup & Ellett, 1993) (Appendix A) developed for use in this study.

Teacher Receptivity to Change: Receptivity to change is defined as the degree to which a person is able or ready to accept, or adopt a particular change or innovation (Chauvin, 1992). It includes an individual's readiness or internal orientation toward planned organizational change and does not necessarily dictate how an individual may actually act in response to change efforts. Receptivity to change includes the full range of internal orientations varying along a continuum from strong positive receptivity (e.g., total acceptance) to strong negative receptivity (e.g., absolute rejection).

In this study the operational measure for teacher receptivity to change is a modification of the Receptivity to Change Inventory (RCI) (Hennigar, 1979; Chauvin, 1992) (Appendix A) which was derived from recent factor analytic studies conducted by Chauvin (1992) with a large sample of schools in Louisiana. Teacher Receptivity to Change is operationalized by teacher scores on the subscales of the RCI modified inventory used in this study.

Dependent Variables (Indices of School Effectiveness)

School effectiveness refers to the extent to which a school accomplishes a variety of organizational and student-related goals/outcomes. Thus, school effectiveness is a

broad-based construct that can be understood in view of the specific criteria used to operationalize effectiveness. Such a view incorporates, but is not limited to, notions about the effectiveness of schools as organizations, school productivity, and school holding power. The MSCE developed to guide this study (Figure 1), depicts the school effectiveness variables as operationalized below.

School Organizational Effectiveness: Organizational effectiveness is defined as the extent to which organizational members are able to establish and accomplish organizational goals in a manner that is efficient, adaptable, and flexible to the needs of the organization and that ensures production of a high quality and quantity of product. Organizational effectiveness is operationalized in the study by teacher scores on the Index of Perceived Organizational Effectiveness (IPOE) (Miskel, Fevurly & Stewart, 1979; Mott, 1972) (Appendix A).

School Productivity: The school productivity (student achievement) index is operationalized in this study by school level (NCE) scores on a standardized achievement battery (Stanford Achievement Test) for students in Grades 1-8.

School Holding Power: School holding power reflects the positive attraction or valence of a school for the student clientele it serves (Johnson, 1991; Morris, 1986). School holding power is operationalized in this study by a proxy measure of the percentage of schoolwide student average daily attendance (SADA). Percentages of SADA were computed by the school district for the 1992-93 school year.

Research Questions

Since this exploratory study focused on development of a conceptual framework rather than on derivation of hypotheses from competing frameworks, and utilized new measures, a series of primary research questions was used to guide data analyses. Primary research questions were generated to examine relationships among independent and dependent variables in the conceptual framework. Additionally, a set of supplemental research questions were developed to further insights about the relationships among study variables and their generalization across selected school context factors. The sections that follow include the primary and supplemental research questions that were used to guide the study. Each research question is followed by a brief conceptual rationale.

Primary Research Questions

Research Question 1

What is the nature of the empirically-derived constructs measured by the PLEI?

Recent views in the literature on professionalism in teaching (e.g., Darling-Hammond, 1993; Shulman, 1987) suggest that learning is an important process necessary for continuous growth and professional development. Thus, professional school learning environment characteristics which focus on professional norms involve communication for learning, emphasis on individual and group reflection, development of goals/vision and cultural norms and beliefs that emphasize learning, collaboration in professional supervisory learning interactions, and emphasis on learning equity for teachers.

Most conceptualizations of school environments involve psychosocial and economic elements of school climate and culture which stem from sociological or ecological theories (Anderson, 1982; Firestone & Wilson, 1985; Moos, 1974; Taguri, 1968). A more recent attempt to adapt models of climate to understand the organizational nature of professional activities related to supervisory interactions (Claudet, 1993) has served as an initial probe in investigating elements of professional learning environments in schools. Since supervisory climate is but one element of a school's total professional learning environment, further research and instrument development seems needed in order to identify and explore additional subelements related to cultural and structural learning dimensions of school professional learning environments.

Since the instrument used to investigate professional learning environment characteristics is new, there is a need to empirically examine the nature of the constructs it has been developed to measure.

Research Question 2

What is the nature of the empirically-derived constructs measured by the TSOEA?

As previously noted, researchers have linked teacher perceptions of self and organizational efficacy to receptivity to change and organizational learning and effectiveness (Fuller, Wild, Rappoport & Dornbusch, 1982; Lawson & Ventriss, 1992; Offermand & Gowing, 1990). Thus, it seems that exploration of these constructs and their relationship to learning within the school environment is important in linking

personal variables to school change and effectiveness. There are few known instruments developed for use in schools, however, that have addressed the concept of perceived efficacy within an organizational context. Most have targeted teacher perceptions of self-efficacy in terms of either personal competency or motivational factors in relation to specific classroom situations, for example, classroom management strategies (e.g., Emmer & Hickman, 1991; Gibson & Dembo, 1984). Since perceptions of efficacy extend beyond the classroom and have implications for individual and organizational behavior, then investigations of the efficacy construct in relation to organizational situations (i.e., working toward attainment of various organizational goals) seems viable.

Bandura's (1977) theory of efficacy posits that efficacy is a two-faceted construct consisting of elements of competency and motivation and that self assessments of competency can effect subsequent motivation toward accomplishment of goals. Thus, assessments of efficacy in terms of motivation (rather than competence) toward achieving organizational goals seems a viable way of measuring the construct as it relates to learning and behavior in a school organizational (rather than classroom) contexts. Motivational elements of efficacy are related to outcomes and, as described by Bandura (1977), include the willingness of individuals to expend energy and effort, to persist in spite of obstacles, and to persevere in spite of repeated failures. Thus, a person (or collective individuals) with high efficacy expends a high degree of initial effort toward goal attainment, persists in working toward goal accomplishment in spite

of uncertainties and/or obstacles, and continues to persist toward accomplishment of further goals in spite of repeated failure(s).

Bandura (1977) also refers to dimensions of generality, magnitude and strength that should be accommodated when attempting to assess efficacy. Generality of efficacy constructs in this study is reflected in the extent to which organizational goals, relative to which individuals are asked to provide efficacy motivational perceptions, span a variety of organizational situations (e.g., goals related to students, parents, teacher/administrator relations, and communication of school vision). Strength of efficacy constructs is reflected in the degree of energy, effort, persistence and perseverance that an individual is asked to estimate that he is (or others are) willing to put forth in accomplishment of the various goals. Magnitude of efficacy was of lesser concern in this study than the generality and strength dimensions since only motivational elements of efficacy rather than competency elements were addressed in this study. The dimension of magnitude, as described by Bandura, seems to be largely related to perceived competence relative to the difficulty of the task or goal. Although perceptions of motivation toward accomplishment of the various goals presented in this study may be varied, they are not necessarily synonymous with perceptions of the difficulty of the task.

Research Question 3

Are there statistically significant, bivariate relationships between professional learning environment variables, and the various school effectiveness indices?

Learning is an integral part of a school environment and may result from numerous interactions within the environment. However, the content of learning relative to cultural and communication patterns in the school determines professionalism in the learning environment (Rossman, Corbett & Firestone, 1988). Teachers may learn ways of doing things in a school which are not grounded in professionalism. For example, it may be culturally acceptable and expected that neither teachers nor students remain in the school building beyond dismissal. The content of this type of learning suggests a rather non-professional focus. Thus, learning may occur in both professional and non professional ways, all of which subsequently contribute to the cultural and climate elements of the professional learning environment of a school.

Research using the IPOE (Miskel, Fevurly & Stewart, 1979; Miskel, Bloom, & McDonald, 1980) indicates that elements of climate are linked to school organizational effectiveness. Studies of school effectiveness have also linked climate variables with indices of school effects such as student achievement (e.g., Brookover & Lezotte, 1979; Edmonds, 1979; 1983; Rutter, 1987, Weber, 1971, etc.). Thus, schools in which the climate is open and in which there is an emphasis on professional learning tend to be more effective. As Mott's (1972) model suggests, a more effective school produces higher student achievement, generates more positive attitudes so that students want to attend (holding power), adapts better to environmental constraints (change), and deals more potently with internal problems (professional learning).

Research Question 4

Are there statistically significant, bivariate relationships between efficacy variables, and the various school effectiveness indices?

Research in psychology has suggested that beliefs of high efficacy enhance motivation (Bandura & Cervone, 1983), promote higher goal-setting behaviors, and influence persistence and commitment to goal accomplishment (Latham & Locke, 1986, Mento, Steel & Karren, 1987). Lawson and Ventriss (1992) suggest that for an organization, setting and promoting commitment to organizational goals enhances individual members' perceptions of their own effectiveness within the organization, as well as enhances the ability of the organization to achieve its goals.

Mott's (1972) model of organizational effectiveness is based upon the ability of an organization to mobilize its centers of power for action to achieve goals and to adapt. Thus, if beliefs of high self and organizational efficacy enhance goal attainment, then it follows that organizational member perceptions of these variables relate to perceptions of effectiveness. Mott also refers to effective schools (those able to achieve goals and adapt) as producing high student achievement and having a positive valence (holding power). It also follows that if high member perceptions of efficacy are related to organizational goal attainment and if goal attainment is related to effectiveness in terms of student achievement and positive valence, then there should be an important relationship between levels of self and organizational efficacy and indices of school effectiveness and productivity.

Research Question 5

Are there statistically significant, bivariate relationships between teacher receptivity to change variables and the various school effectiveness indices?

Results of a recent study by Chauvin (1992) suggest that personal variables such as teacher receptivity to change may indeed mediate change processes in schools as teachers adapt/adopt to either superficial and/or more meaningful cultural/normative changes. Receptivity is related to elements of school cultural attitudes and beliefs and reflects organizational norms which may be either consonant or dissonant with planned change in schools. If school change is typically targeted at positive outcomes which render elements of the organization more effective, then the more in conflict change efforts are with cultural norms and beliefs, the greater the individual and organizational resistance to the change, and the less likely that the change effort will be effective (Corbett et al., 1987; Deal, 1990; Rossman, et al., 1988).

Research Question 6

Are there statistically significant, multivariate relationships between the various independent variables (professional learning environment variables, efficacy variables, and teacher receptivity to change variables) and the dependent variables (school effectiveness, holding power, student achievement)?

Research on school climate, culture and learning environments has established positive linkages between elements of these constructs and indices of school effectiveness such as organizational productivity, student achievement and school

valence (Anderson, 1982; Brookover & Lezotte, 1979; Edmonds, 1979; Claudet, 1993; Logan, 1989; Miskel, Fevurly and Stewart, 1984; Morris, 1988).

Learning in schools, particularly as it relates to change processes, occurs as a result of personal interactions and interpretations within the environment (Kelly, 1955; Lewin, 1947). Proxy measures of learning such as student achievement and holding power can be viewed in this study as indicators of learning outcomes. Thus, if learning is mediated by individual interactions and perceptions as Lewin posits, then examining combinations of personal variables (perceptions of self/organizational efficacy and teacher receptivity to change) and organizational variables (elements of the professional learning environment) in concert may provide a better understanding of the manner in which these variables collectively explain variance among and between multiple indices of school effectiveness.

Research Question 7

To what extent are teacher perceptions of professional learning environment variables and school effectiveness indices mediated by efficacy variables?

Research in psychology has suggested that beliefs of high efficacy enhance motivation (Bandura & Cervone, 1983), promote higher goal-setting behaviors, and influence persistence and commitment to goal accomplishment (Latham & Locke, 1986; Mento, Steel & Karren, 1987). Bandura (1977) suggests that individuals can believe that certain behaviors will produce certain outcomes, but if they do not believe that they can perform the necessary activities, they will not initiate the relevant behaviors, or if they do, they will not persist. Thus, it seems likely that teachers with a high sense of

efficacy will view the professional learning environment more positively and will be motivated to initiate and persist with behaviors targeting goal accomplishment such as enhancing student learning and creating positive attitudes. If it can be shown that this mediating relationship exists, then it follows that provisions for accommodating such relationships among personal and organizational variables, particularly in theories or models of school organizational change and effectiveness, should be made.

Research Question 8

To what extent are teacher perceptions of professional learning environment variables and school effectiveness indices mediated by teacher receptivity to change variables?

Fuller, Wild, Rapoport & Dornbusch (1982) have posited that in order to understand teacher receptivity to change, one must understand both group cultural and climate interactive dimensions and efficacy and individual dimensions of efficacy as well. If the perception of impact of change efforts negatively impacts either the individual or the organization's ability to perform or accomplish goals, then the potential for resistance to change is likely (Chauvin, 1992; Fuller, et al., 1982).

Waugh and Punch (1985) found that overall feelings about a change influence behavior intentions. However, actual behavior, such as in forced compliance, may not always parallel receptivity to change efforts. Thus, changes in the most easily alterable profane norms often appear evident, yet changes in deep-seated cultural norms, which affect organizational goal attainment and related indices of effectiveness and productivity, may not occur. Thus, learning may indeed occur in the professional

environment of a school, but not in ways that are consistent with goals of the change effort. Therefore, the relationship of professional learning to indices of organizational effectiveness may be mediated by teacher resistance to change.

If it can be shown that this mediating relationship exists, then it follows that provisions for accommodating such relationships among personal and organizational variables, particularly in theories or models of school organizational change and effectiveness, should be made.

Research Question 9

To what extent do the general relationships among independent and dependent variables in the study, using school means as the unit of analysis, vary within sample schools, using individual teachers as the unit of analysis?

Research on school climate, culture and learning environments shows that there are generally positive relationships between elements of these constructs and indices of school effectiveness such as organizational productivity, student achievement and school valence (Anderson, 1982; Brookover & Lezotte, 1979; Edmonds, 1979; Claudet, 1993; Logan, 1989; Miskel, Fevurly, & Stewart, 1984; Morris, 1988) using schools as the units of analysis. Similarly, research on personal variables such as receptivity to change and self and organizational efficacy have been linked to indices of organizational effectiveness (e.g., Corbett, et al., 1987; Elmore, 1987; Lawson & Ventriss, 1992; Waugh & Punch, 1985). Thus, it is expected that generally positive relationships will be established among variables in this study. For example, the more teachers view the school environment as characterized by learning and professionalism, the more likely

they are to view the school as an effective organization. However, a recent study by Claudet (1993) clearly documented differences in the magnitude and direction of linkages among school organizational and effectiveness variables within schools. He used these findings as an important means of identifying schools for subsequent study using qualitative methodologies. His work served to identify a set of within school variables that were useful in further explicating quantitative linkages among school environment/climate variables and school organizational effectiveness. Since the professional learning environment and efficacy measures used in this study are new, and since the conceptual framework used links them to school effectiveness indices, the results of within school analyses can further inform both methodological and theoretical concerns in which the study is grounded.

Supplemental Research Questions

In addition to the primary research questions, a variety of supplemental research questions are addressed in this study, some as they emerged from the results of the primary data analyses. Supplemental research questions are listed below.

1. What is the nature of the empirically derived constructs measured by the modified Receptivity to Change Inventory?

The modified Receptivity to Change Inventory (RCI) used in this study was an abbreviated version of Chauvin's (1992) adaptation (for use in schools) of Hennigar's (1979) original RCI. Results of factor analyses conducted in the Chauvin study provided a basis for conceptualization of teacher receptivity to change as a two-dimensional construct consisting of receptivity to superficial/behavioral change (SBC)

and receptivity to cultural/normative change (CNC). Factor analyses using teacher data on the abbreviated form of the RCI in this study were conducted in an attempt to provide support for this two-dimensional construct of receptivity. Also, since the items used on the abbreviated form of the RCI in this study were only a subset of the items contained on each of the above mentioned subscales of the RCI, there was a need to investigate reliabilities of the subsequently factored subscales.

2. Are bivariate relationships between subscales of the PLEI, TSOEA, RCI, and the school effectiveness indices statistically independent of school size?

3. Are bivariate relationships between subscales of the PLEI, TSOEA, RCI, and the school effectiveness indices statistically independent of school socioeconomic status?

In order to examine the generalizability of relationships established between the various independent and dependent variables in this study across key school demographic characteristics, a series of partial correlation coefficients was computed between these variables statistically controlling for indices of school size (total school student enrollment) and school socioeconomic status (percentage of students in a school receiving free or reduced-cost lunches).

4. Is there a significant multivariate relationship between PLEI and TSOEA variables and RCI variables?

This question was designed to examine relationships between the collective set of learning environment (PLEI) and teacher self and organizational efficacy (TSOEA) variables and the two subscales of the RCI. Analyses related to this question allowed

for an examination of the complexities of interrelationships among these variables when examined in concert, and assisted in understanding linkages between these variables when considering possible revisions in the MSCE.

5. Are there significant, bivariate intercorrelations between subscales of the independent variable measures in this study?

This question was designed to examine direct linkages between the various independent variables measured in order to inform revisions in the original conceptual framework (MSCE) guiding the study.

6. To what extent does the general relationship established between selected learning environment and efficacy variables using school means as the units of analysis vary within sample schools using individual teachers as the units of analysis?

This question was designed to yield information to corroborate findings from a series of recent studies that have raised methodological and theoretical issues about appropriate units of analysis in research on linkages between school organizational/environmental variables and school effectiveness (Chauvin, 1992; Claudet, 1993, Johnson, 1991; Logan, 1990). In addition, this question was designed to address methodological concerns that might be raised about the possible effects of common data collection method variance.

Assumptions of the Study

1. Since teacher self-report data were collected for the study, it was assumed that respondents were reasonably honest in reporting perceptions that reflect conditions existing in the everyday life of the school.

2. The participation of school district personnel in the selection of sample schools resulted in a school sample demographically representative of the entire district.

3. The requirement of voluntary participation of teachers within schools generated sufficient responses to establish valid and reliable school mean scores on the various independent variable measures used.

4. The generalizability of the results obtained from this study may be limited by the nature of the schools in the large urban district selected for the proposed sample and/or by common method variance concerns.

Summary

Chapter 1 presented a brief overview of the literatures relative to each component of the conceptual framework that was used to guide this study followed by a description of the nesting of each component in the larger conceptual model, The Model of School Change and Effectiveness (MSCE). The model was developed to provide a framework for linking professional learning, personal motivational, and effectiveness variables within the context of change in schools. A series of research questions and conceptual derivations which were used to guide data analyses in the study were presented.

Chapter 2 presents a review of the literature relative to major components 9- included in the Model of School Change and Effectiveness.

CHAPTER 2: REVIEW OF RELATED LITERATURE AND RESEARCH

Introduction

Chapter two of the study presents a review of related literature relative to conceptualizations of constructs and linkages depicted in the Model of School Change and Effectiveness (MSCE) (Chapter 1, Figure 1). The review provides summaries of research most pertinent to understanding constructs of change, school effectiveness, self and organizational efficacy, receptivity to change, and adult learning in school professional environments. Chapter II is organized as follows: 1) perspectives on educational reform and change; 2) research on school organizations and change; 3) research on human learning; 4) studies of learning environments; 5) research on self and organizational efficacy; 6) studies of receptivity to change; and 7) perspectives and research on effectiveness in school organizations.

Perspectives on Educational Reform and Change

During the past 40 years, studies of school change have been quite diverse in focus and quality, have not proceeded in any systematic way, and have been largely atheoretical. Thus, findings from such a diverse pool of research have been difficult to integrate or compare (Gaynor & DuVall, 1977; Waugh & Punch, 1987). Perhaps this diversity is due to the complexity of the construct of change. The study of change is complex partially because of the variety of definitions and conceptions of the term "change" and partially because of the nature and multitude of interactions of individual and organizational factors that effect the change process as well as change outcomes.

Fullan (1993) notes that the term "reform" has been used quite loosely in the literature to refer to either single changes (e.g., program innovations) affecting only particular aspects of schooling, to more sweeping changes (e.g., restructuring schools) or even to the general need to reform education (e.g., national educational standards). All of these references, though quite different in meaning and interpretation, however, refer to policy thrusts which require processes involving change in varying degrees at the individual and/or organizational level(s).

Attempts to understand the process of change have initiated historically from studies focused on the adoption of change by individuals (Argyle, 1967; Bennis et al., 1969; Coch & French, 1948; Lawrence, 1954, Rogers & Shoemaker, 1971; Zander, 1962). As a result of examining diverse findings, researchers began realizing that processes of change were more complex than initially thought and involved interactions of factors other than those unique to individuals. Thus, in studies of organizational change, examination of factors related to individual, political, economic and organizational realities and constraints, and capabilities and characteristics of institutions implementing the change gained importance in the change literature (Bennis et.al, 1976; Giacquinta, 1973).

Examinations of the interaction of the various individual, organizational, political and economic factors interacting in change processes in schools have typically involved tracing movement of reform initiatives from adoption through implementation to institutionalization in order to identify important variables that seem to effect or alter the outcome of the intent of the reform. However, many studies tracing reform

initiatives through these processes in schools have been somewhat inconclusive, as most educational reform initiatives have been rather short-lived, particularly during the past three decades, and many have not survived the implementation stage (Nakamura & Smallwood, 1980).

Historically, major reform movements in education in the United States have followed a rather cyclical pattern, appearing on the national agenda every decade or so in response largely to external pressures for change in the educational system (Cuban, 1990). For the most part, they have been characterized as short-lived, political endeavors initiated by forces external to schools which have left the larger educational context only sightly altered, and which have produced negligible changes (Murphy, 1990). Following the Coleman, et al., (1966) Equality of Educational Opportunity Study, which was perceived as somewhat of an indictment of the effects of schooling, a series of popular national reports concerning the state of American education, most notably, A Nation At Risk (1983), has appeared on the national scene. These reports have fueled themes of educational change evident from the late seventies into the nineties.

Fullan (1993) outlined the themes of national educational change and reform thrusts as follows: 1) 1960s - Adoption of Reforms; 2) 1970s - Implementation Problems; 3) 1980s - Multiple Innovations; and 4) 1990s - Systemic Reform. The first two themes focused on surface-level changes (e.g., changes in materials, equipment, programs, etc.) and have often been referred to as first-wave reforms. The latter two themes, second-order changes, have evidenced a shift in focus to systemic elements of

school organization and structure (Cuban, 1988; Murphy, 1989). These themes of change, as Fullan notes, have set the stage for the complexity and comprehensiveness of changes that educators face this decade and into the 21st century.

Since schools are typically viewed as catalysts for cultural change and improvement, and since they are embedded in wider socio-political contexts, inquiries about school change from a variety of conceptual and research perspectives have rapidly proliferated. For the most part, however, studies of change in schools have been directed toward investigations of the effects of new models and programs targeting school change as part of improvement efforts (e.g., school-based management, restructuring schools, shared decision making models) and/or programs designed to improve student outcomes in schools (e.g., early school effectiveness research). Such studies represent attempts to better understand the effects of change policies on schools as complex social systems. Few, however, have been designed to investigate the complexity of interactions of personal and school environmental factors in change as a process in schools.

Fullan and Stiegelbauer (1991) contend that change processes in schools, while appearing technically simple, are quite socially complex. They summarize findings of the past decade of research on change relative to reform in schools as follows:

> In theory, the purpose of educational change presumably is to help schools accomplish their goals more effectively by replacing some structures, programs and/or practices with better ones. Change for the sake of change will not help. New programs either make no difference, help improve the situation, or make it worse. Through trial and error of constantly experiencing attempts at school reform, we have learned that the process of planned educational change is characterized by complexity as personal, political and organizational forces intermingle (Fullan & Stiegelbauer, 1991, p. 15).

Thus, it seems that change in school organizations has come to be understood as a complex social process that often can neither be predicted nor explained by well-meaning attempts at educational improvement (e.g., reform policies) which often ignore the realities of school contexts. However, reforms have often been used by policy makers to demand changes in education as elixirs for an ailing economy or declining leadership in technological developments. Many of these reforms have been initiated and implemented without regard to what is known about the gradualness of change processes in schools complex social organizations (Darling-Hammond, 1990; Fullan, 1991) and without fully understanding that some of the difficulties in formulating and carrying out effective reforms arise from individual and/or organizational resistance to change (Corbett, et al., 1987).

Most studies of change and reform in school organizations have largely addressed change effects and have not typically focused on change processes or the effects of cultural attitudes and perceptions or contextual factors on change initiatives. Darling-Hammond (1990) underscores the need for understanding change in schools from both the process and cultural (or receptivity) perspectives. Research on individual and organizational change has documented that change can be seen as a gradual process that originates with simple changes in behavior (e.g., externally observable individual/organizational changes such as changes in use of instructional media) that seem to occur upon initiation of a change effort and are followed by more complex changes is beliefs, attitudes and cultural norms (e.g., changes internal to the individual/organization such as new beliefs about the nature of learning) (Fullan, 1990,

1993; Hall & Hoard, 1987). However, for planned change to become a meaningful and professional part of the everyday life of an organization, changes in beliefs, attitudes, understandings, and values must accompany the effort (Bennis, Benne & Chin, 1969; Chauvin, 1992; Fullan, 1985, 1992, 1993; McLaughlin & Pfeifer, 1988). It seems that in this latter and crucial part of the change process, which is important as change becomes meaningfully rooted in the cultural norms and values of the organization, schools begin to shift into a mode of passivity and compliance, having satisfied external pressures for implementation of the change on the organization. By taking this path of least resistance, schools seem to be affirming the age old observation, "The more things change, the more they remain the same."

Fullan (1994) further explicates the reasons why reform efforts have not lived up to their initial billing as follows:

> There are two basic reasons why educational reform has failed. One is that the problems are complex and intractable. Workable, powerful solutions are hard to conceive and even harder to put into practice. The other reason is that the strategies that are used do not focus on things that will really make a difference. They fail to address fundamental instructional reform and associated development of new collaborative cultures among educators. (p.46)

Thus, Fullan points to Sarason's (1990) contention that there is a lack of convergence of expectations for students and teachers. If students are expected to interact as continuous learners and effective collaborators, then teachers must also exhibit these same behaviors in interactions and collaboration with their peer teachers. Thus, teachers must succeed if students are to succeed, and students must succeed if society is to succeed (Fullan, 1994). Furthermore, the role of teachers and professional

learning and collaboration seems an important one if schools are to grow, develop and change in a positive ways to enhance and support learning processes for students.

Learning and change in schools as organizations has been investigated from a variety of perspectives. Particularly useful models for investigation of school organizational variables have been derived from social systems theories.

Research on School Organizations and Change

Social Systems Theories and School Change

Since schools can be seen as formal organizations, social systems theories and models have provided useful frameworks for research in schools as complex, open social systems (Bidwell, 1965; Etizoni, 1964; Getzels & Guba, 1957; Parsons, 1960). Getzel's and Guba's (1957) social-systems model of organizations has been particularly useful in understanding school organizational environments in terms of both institutional and individual dimensions and for explaining organizational behavior as an outcome of the interaction between these dimensions. School organizational behavior is characterized by complex sets of interactions that provide a basis for sociopsychological theories of group behavior in which individual roles and personality and organizational dimensions interact. Thus, behavior in social systems can be explained in terms of the interaction between role (expectations), and personality (internal need structure of an individual): $B=f(RxP)$. Behavior in an organization is determined both by expectations of the of the institution and the individual as the group responds to inputs from the environment.

Thus, from a social systems perspective, understanding organizational behavior (i.e., change in schools) involves consideration of the complexity of interactions between and among individuals and the environment. Studies of change and effectiveness in have been fraught with difficulty as elements of culture, climate, environment and personal and institutional factors interact to accept, reject or absorb innovation attempts resulting in transformation of well-intended initiatives into contextually specific outcomes that have been difficult to predict or explain in ways that contribute to either theoretical or practical understandings of school organizations.

Research on Change in Schools

Schools have historically been inundated with reforms and change demands and have largely escaped with mere implementation of structural changes, yet have remained unchanged in terms of beliefs, values and attitudes which characterize school culture. This absorption phenomenon may characterize individual and organizational resistance to incorporation of meaningful change as a professional part of the every day life of a school. Research has shown that individual reactions of schools to change efforts has been quite diverse in terms of effectiveness of incorporation of planned change (e.g., Cohen & Ball, 1990; Darling-Hammond, 1990; Sikes, 1990). If this is the case, then understanding organizational and individual variables which may facilitate change and effectiveness in schools might be useful in the development of theoretical perspectives of school environments as learning communities.

Since teachers play a significant role in implementation of change efforts in schools (Firestone & Corbett, 1988; Darling-Hammond, 1990; Cohen & Ball, 1990),

as it is this group who most directly affect change in the everyday life of classrooms, teachers are most likely to influence the success or failure of such efforts. The extent to which teachers are receptive to change efforts along with their perceptions of their perceived ability to implement the change in a meaningful way in their own classrooms or in the larger school environment, seem to be important elements in understanding the change process and change efforts at the school level. Thus, rather than simply examining change effects or outcomes, understanding the process of change and the complexity of its relationship to individual (teacher) and organizational factors in schools seems an important key in further efforts if change in schools is to be meaningfully realized (Hall & Loucks, 1982, Murphy, 1989).

Acquiring deep ownership of improvement efforts and change requires more than group acceptance of faddisms. Change is meaningfully integrated in the social contexts of schools through both individual and group reflective experiences and learning that arises from engagement in solving problems. What are the characteristics of schools that emphasize these learning processes?

Research has shown that the most productive schools value individual and collective learning simultaneously (Nias, Southworth, and Campbell, 1992). Fullan (1993) also strongly emphasizes the importance of the role of every individual in managing change in a continuous manner. He maintains that every teacher in a school has the responsibility to help create an organization capable of individual and collective inquiry and continuous renewal, or change and learning will not occur. Only when individuals take action to alter their own environments is there any chance for deep

change. As more teachers and administrators take such action, the greater the chances of intersecting and of forming the critical mass necessary for system change (Fullan, 1993, p. 130). Thus, understanding the interaction of change with personal perception variables seems important in facilitating schoolwide learning and effectiveness of change efforts.

Historically, policy makers have maintained a mindset that simply mandating policy will ensure change despite the cumulative evidence that this belief is erroneous. As McLaughlin (1990) notes, simply mandating policy is insufficient for insuring educational changes of value, particularly at the school level. Achieving the complex goals of change requires committed action and understanding of the intricacies of change. Change, as depicted by Fullan, is a journey (not a blueprint) which is often contextually confounded by culture and often by multiple, simultaneous implementation of innovations. Understanding that solutions cannot be known in advance is crucial to engaging in a meaningful journey of learning which results in situationally-specific outcomes and lasting change, rather than simply in "coping" behavior. Thus, effective change requires new learning and the acquisition of new skills, creative thinking and change in beliefs or understandings,

Liberman, Darling-Hammond, & Zuckerman (1991), in their studies of school restructuring efforts have reinforced Fullan's (1991) and Sarason's (1990) contentions about the essentiality of developing a rich learning environment for teachers and for students, as investments in teacher learning are what ultimately feed student learning. Most recently, change efforts have targeted teamwork approaches (e.g., shared decision

making) to educational change derived from those used business and industry, have become widely accepted as they are more representative of collective rather than individual change agents in the school. This type of approach to change, built on ideas related to empowering teachers and encouragement of professional leadership density (Sergiovanni, 1991), is based on the belief that professional development built on teamwork and shared norms and values can orient a school toward the continuous intellectual renewal of those who work in it. Such approaches have continued to emphasize that every member of the school community (including teachers and administrators) are considered learners (Brandt, 1992).

Thus, effective change in schools seems to be linked to characteristics of the environment that facilitate and support learning as an ongoing professional process both within and external to the school environment.

Research on Human Learning

Theories of Learning

Historically, particularly in the fields of education and psychology many competing theories of learning have emerged in attempts to understand human behavior. Most differ in philosophical premises and in underlying conceptions of the nature of man. In attempts to understand the construct, traditional behaviorists have posited that the learner is essentially passive and that his behavior is controlled by internal and external forces. Behavioral theories such as contiguity theories (e.g., Pavlov; Guthre,1935) and reinforcement and operant conditioning theories (e.g., Thorndike, 1932; Skinner, 1953; 1960), while useful in understanding the relationship of stimulus

to response, seem somewhat inadequate in explaining the complexity of the interactions of human perceptions, goals, meaning and cognition in the process of learning as it occurs in complex social systems.

Social learning theories, which include cognitive field theories and/or phenomenological theories, (e.g., Kelly, 1955; Rotter, 1954; Lewin, 1947) place more emphasis on the complex nature of the individual learning process as it occurs in the environment. In adding an environmental dimension and expanding personal variables to include such as an individual's life space, purpose/motivation, personality characteristics, insights, cognitive processes, social learning theories have attempted to expand the complexity of stimuli which produce individual responses. In addition, social learning theories have been useful in explaining learning, not only as an inference made from directly observable behavior, but also as a latent process (Mischel, 1971).

Conceptual models developed from theories of social learning that have been used for inquiry have typically incorporated two major ideas: 1) learning can be seen as both a process and a product; 2) learning is a function of the reciprocal interactions of individual variables, situation variables, and response variables. One such phenomenological model of learning mentioned above is Lewin's (1947) field theory in which behavior is viewed as a function of the individual and the environment [B=f(P,E)]. Lewin's theory has been useful in explaining the complexity and dynamics of interactions in schools and their subsequent effect on learning processes. Though learning remains a highly individual process, it occurs within a larger environment. This larger environment includes not only the social context in which the individual is

immersed, but the unique, individual environment which consists of an individual's construction and interpretation of factors external to the self (Kelly,1955). Thus, if individual learning for teachers in schools is mediated by such interactions and perceptions, studies of school change might well benefit from attempts to identify personal and environmental variables and interactions which are more conducive to professional learning in order to facilitate meaningful change in schools.

Teacher Learning and Professionalism

Views on professionalism in teaching seem somewhat devoid of references to learning as it relates to professional activity . For example, professionalism in teaching, according to Darling-Hammond (1988; 1993), empowers teachers and seeks to heighten accountability by investing in knowledge and its responsible use. The professional uses knowledge to make informed judgments about what is best for clients (students). Experiential, clinical, and research knowledge allows the professional teacher to control his/her own agenda. In Darling-Hammond's view, the individual professional is responsible for building his/her own individual knowledge base and for reviewing and reflecting on practice and through peer mediated and self-evaluation. From this perspective, teachers as professionals maintain autonomy while engaging in growth-oriented, dialogical, peer review of practice through regular consultation with other professionals as well as evaluating practice and the ongoing activities of the organization. Thus, the emphasis in this view of teaching as a professional activity, is on acquiring knowledge, applying the knowledge in the classroom, and adjusting practice relative to results of application of such knowledge. Though it may be inferred

that learning occurs through these processes, particularly through the activities of collaboration and reflection, this view of professionalism seems somewhat narrowly focused, and falls short of understanding the global nature of professional learning in school organizational environments.

The Holmes Group and Carnage Task Force also suggest that the knowledge base for teaching should define professionalism. However, Shulman (1987) asserts that teaching is defined by flexibility in that the knowledge base for teaching is not fixed and final and much remains to be discovered, invented and refined. He observed that as researchers are presenting more complex views of the art and science of teaching that include processes of pedagogical reasoning and action involving comprehension, transformation, instruction, evaluation, reflection, and new perceptions, at the same time, policy makers are calling for restructuring schools. Thus, teaching as a profession is faced with multiple uncertainties and constant flux in multiple arenas which has resulted in perceptions of teaching as "the not-quite profession" (Goodlad, 1990).

Duckworth (1988) views professionalism in teaching as research in action, a more psychological or perhaps sociological perspective. Her emphasis lies in the role of the teacher as an active participant in answering and understanding the question of how humans (students) learn in particular circumstances or environments, in classrooms and in organizations. Judith Warren Little (1992) emphasizes the relationship of teaching to the school community. She stresses that the current press for collegiality and the professional community idea of teaching is often met with opposition, or at least

skepticism, as the teaching profession has been historically characterized by pervasive and persistent privacy norms. Finally, Huberman (1993) posits a metaphor of teachers as independent artisans "tinkering" with the craft at hand as a result of necessity, as schools are organized to exert little influence on teaching practice or its improvement.

Thus, there seems to be a wide range of diversity of views and opinions about and a general lack of consensus of what professionalism in teaching actually means. Little (1992) suggests that the consequences of disagreement have been to render autonomy and community, not as either/or conditions, but as fluid, dynamic, and situationally specific norms of action and interaction. Similarily, Darling-Hammond (1993) suggests that professionalism is not an end state, but a continuous process of defining and redefining goals and that occupations are often in various stages of becoming professionalized. If this process is characteristic of professionalism, then it seems that learning may be an important component that is often overlooked in discussions of the teaching profession as "being in the process of becoming" (Allport, 1937). Thus, emphasis on learning for all members of a school organization (students, teachers, administrators, etc.) within the school environment seems critical in enhancing this ongoing process of change and reflection deemed characteristic of professions.

Studies of Learning Environments

Historically, studies of environments in schools have evolved from work in the field of social psychology which began as early as the 1920s in an effort to understand the complexity of relationships between students and teachers and among students (Ellett, 1989). Chavez (1984), in his synthesis of conceptual bases and methodology

involved in early studies of learning environments, refers to the wide variation of conceptual thrusts historically evident in studies of social behavior in classrooms, teacher personality influences on learners in the classroom, and leadership roles and behavior in organizations. As the study of classroom climates evolved during the 1950s and 1960s, the study of classroom environments became more methodologically rigorous and theoretically based (Ellett, 1989). Theoretical underpinnings of classroom environment research are described in several reviews (e.g., Fraser, 1986, 1989; Fraser & Walberg, 1991). School environment research has received somewhat less attention and has typically been associated with theoretical concepts prevalent in the field of educational administration and in views of schools as formal organizations (Anderson, 1982, Fisher & Fraser, 1991).

The study of learning environments in schools is theoretically linked to and has evolved from studies of culture and climate in organizations.

Conceptual/Theoretical Bases of Studies of Learning Environments

Definitions of culture have historically been fraught with conceptual complexity and confusion. There seems to be no best framework for suggesting the existence of an ideal culture, as an organization is more or less effective depending upon situational demands (Hoy & Miskel, 1991). Thus, research in the study of organizational culture has, at best, attempted to describe what exists in terms of cultural assumptions and has typically drawn conclusions/implications from comparisons between effective and ineffective organizations, the success of which was determined by some external criteria such as financial success in industry (e.g., Ouchi,1981; Peters & Waterman,1982).

Studies of culture in educational organizations have borrowed heavily from ideas found in research on corporate organizations. Typologies of organizational culture that have been applied to schools have stemmed from ideas of organizations as social transaction units which involve distribution of power, both internally and externally (Hoy & Miskel, 1988). Some attention to the study of culture as a human resource orientation, particularly in terms of leadership within the organization (e.g., Hempill & Coons, 1950; Halpin, 1956, 1966; Stogdill, 1963; Kunz & Hoy, 1976; Hersey & Blanchard, 1977) has been given to explain personal interactions among leaders and members within the organization.

Culture in schools as social organizations, has been defined as a social element of climate by Taguri (1968), which includes belief systems, values, general cognitive structures, and meaning within the social system that is characterized by the pattern of relationships of persons and groups within the system. Culture has also been viewed as the conservative, stabilizing force which governs behavior within a social organization such as a school (Wilson, 1971; Hanson, 1979).

Historically, research related to culture of social systems has indicated that culture paradoxically, is both static and dynamic (Rossman, Corbett & Firestone, 1988). Even though cultural content carries with it a deep sense of obligation of organizational members, it nevertheless is subject to changes as members come into contact with and/or create new ideas. Thus, elements of culture are somewhat difficult to investigate without consideration of time-bound contextual variables.

Sarason, 1971, expands on ideas of the static and dynamic elements of culture in his application of metaphors of the sacred and the profane derived from the use of social science in the study of religious phenomenon (e.g., Eliade, 1959; Durkheim, 1965; Gordon, 1984) to norms in schools. The impetus of this body of research was the exploration of the relationship of these cultural, normative variables to change in schools as organizations. Presence of both types of norms (sacred and profane) within the culture of schools is necessary for organizational orientation and identity which regulates school life and ingrained patterns of behaving and believing. Sacred norms are enduring, supply stability, and define the realm of reality that gives the organization a meaning or purpose. Profane norms, however, reflect the transitory side of everyday life in the organization. The profane is characterized by accepted transience, legitimacy of continual examination of alternatives and redefinition based on improved knowledge (Gordon, 1984). Thus, sacred norms are thought to be more resistant to change than are profane norms. Understanding these cultural metaphorical constructs and implications for change processes in schools seems important if schools are to achieve meaningful, lasting change.

Firestone and Wilson (1985) provided a framework for studying culture in schools in an effort to examine the differences in cultural content and the relationship of content to effective instruction in schools. This framework involves analysis of culture through the study of three cultural characteristics; content (norms), expressions and symbols (icons and rituals) and communication patterns. These researchers have found that neither sacred nor profane norms necessarily evolve from shared definitions

of best professional practice. Thus, it is the content of such norms that defines the culture of the school. For example, a school cultural norm in which members share a common commitment to enhancing learning for all students suggests more of a professional focus than one in which it is socially expected that neither teachers nor students remain in the school building beyond dismissal(Rossman, Corbett, & Firestone, 1988). Thus, both the content of norms along with communication of these norms seem important cultural elements to consider in the study of school professional learning environments.

Research on organizational climate, particularly in schools, has emerged from studies of culture or ethos of organizations and has been characterized by different conceptions of what constitutes climate. Differences in perspectives of organizational climate are due partially to the application of different theoretical perspectives to schools as organizations. For example, theories in economics, particularly Input-Output theory (eg. Walberg, 1967), assume that some combination of school inputs is thought to create a climate in which positive school outputs are produced (Anderson. 1982). Sociological theories (eg. Brookover & Erickson, 1969) posit that school climate is a more complex cultural system of social relationships that interact to meet educational goals. Ecological theory (eg. Taguri, 1968) combines both perspectives of concern for social processes and culture of an environment and economics (creation, distribution and maintenance of resources and physical elements) to explore what proponents have labeled as functions of the entire system. In the study of school climate, however,

sociological theory, has been widely utilized to explain the complex relationships of individuals with their environment to create different outcomes.

Halpin and Croft (1963) compared climate in an organization to the personality of an individual. Early studies were concerned with attempts to determine the personality of an organization by classifying it on a continuum from open to closed based on subordinates and leader perceptions of interactions among peers and leaders (e.g. Halpin & Croft, 1962; Brown, 1965; Watkins, 1968). Tagiuri (1968) described climate in terms of four dimensions of the environment; ecology, milieu, social system and culture. He posits that elements of all dimensions contribute to the total quality of the environment of the organization. Moos (1974) suggested a system of social ecology of which climate, the interaction of humans with physical and social dimensions of the environment, is one of six approaches to the study of the human environment (Anderson, 1982). Brookover et al.(1977) established school climate factors related to the social structure of the organization derived from the perceptions of students, teachers and principals concerning each other group and its characteristics. Willower and Licata (1975) investigated environmental robustness as a construct for differentiating school climates characterized by high dramatic content and its relationship to the attraction and holding of students and teachers.

Other climate-related research has centered on organizational health (Hoy & Ferguson, 1985) as it relates to the organization's ability to meet both its instrumental and expressive needs; pupil control orientation (Willower, Eidell & Hoy, 1967) as it relates to how teachers and leaders view students in the school to determine the

organization's degree of custodial or humanistic orientation; teacher perceptions of the environment in terms of the bureaucratic characteristics of schools (Anderson and Tissier, 1973); and student and teacher attitudes about the quality of life in schools (Epstein & McPartland, 1976).

Thus, a variety of views of organizational climate dimensions, factors and variables have emerged and there has been considerable debate over which variables collectively define organizational climate. Most conceptualizations of school organizational climate, however, have focused somewhat narrowly on the affective dimension of the total environment of schools as organizations. While this dimension is an important component of school environments, studies of affect in isolation of other elements of environments, particularly as they relate to more recent views of schools as learning communities (Brandt, 1992; Glickman, 1992) seem rather insufficient in understanding the complexity of school learning environments.

A more recent attempt to adapt models of climate and school effectiveness to understand the organizational nature of professional activities related to instructional supervisory interactions and communications has been made by Claudet (1992). His study served as an initial probe of the idea that elements of climate and culture contribute to a larger construct of the professional learning environment of schools.

Learning Environment Research in Schools

Construct dimensions useful in the study of measurable learning environments in schools recently emerged from the work of Herbert Walberg in the late 1960s in research and evaluation activities associated with Harvard Project Physics and, at the

same time, from the work of Rudolph Moos with the development of social climate scales for use in psychiatric and correctional institutions. Moos (1974) developed a three-dimensional scheme for classification of human environments: 1) Relationship dimensions which include the nature and intensity of personal relationships within the environment and the extent to which persons are involved in the environment in supporting and helping one another (e.g., peer support, involvement); 2) Personal Development dimensions which include basic directions along which personal growth and self-enhancement tend to occur (e.g., autonomy, competition); and 3) System Maintenance and System Change dimensions which involve the extent to which the environment is orderly, clear in expectations, maintains control and is responsive to change (e.g., innovation, clarity, work pressure)(Fraser, 1989). This scheme has been used to guide subsequent work in both conceptualization and development of instrumentation/processes to measure social learning environments in various settings.

Most of the research on learning environments in schools has been devoted to the study of classroom environment characteristics (Fraser, 1986; 1989). Investigations of school level environments (other than research on elements of climate and culture), has been somewhat limited. In addition, conceptual bases vary widely (e.g., psychosocial elements, structural features, needs and satisfaction factors, norms and belief characteristics, supervisory elements, etc.) and few available instruments exist which can be used to assess more global, rather than specific, elements of learning environments in schools.

School-level and classroom-level environments have essentially been seen as different in terms of relationships among members of each environment. Whereas classroom interactions involve relationships between teachers and their students or among students, school interactions involve teachers' relationships with other teachers, staff and school administration, as well as with environments external to the school (Fisher & Fraser, 1991).

Methods of Data Collection in School Learning Environments

Various types of methods have been used to capture interactions within social environments and have guided development of processes/measures of learning environment characteristics. One such method involves the use of direct observation, which in research on classroom environments has typically focused on the observation of teacher behaviors and student-teacher interactions. Measures such as the Flanders' Interaction Analysis System (Amidon & Hough, 1967) and the Observation Schedule and Record (OSCAR) (Medley & Mitzel, 1958) have been widely used as means to describe the classroom environment as assessed by a detached observer. More recently, system, the System for Teaching and learning Assessment and Review (STAR) (Ellett, Loup & Chauvin, 1990) has been developed as a holistic assessment of the learning environment that focuses on the quality and quantity of linkages between teaching and learning.

Another type of method that has been prevalent in the study of learning environments is the use of self report perceptions measures to capture environmental characteristics as perceived by milieu inhabitants. Studies in schools have centered on

students' and teachers' collective and individual perceptions of important social and psychological properties of learning environments in classrooms. Because of ease of administration, the relatively low inference qualities and the ability to collect large samples of data from which to make inferences about climate constructs, such instruments are seen as useful for studies of learning environments in elementary and secondary school classrooms and in higher education settings as well (Fraser, 1986).

Instrumentation for Assessment of Learning Environments in Schools

Instruments such as The Learning Environment Inventory (LEI) (Anderson & Walberg, 1974: Fraser, Anderson, & Walberg, 1982), The Classroom Environment Scale (CES) (Trickett & Moos, 1973; Moos & Trickett, 1974), The Individualized Classroom Environment Questionnaire (ICEQ) (Rentoul & Fraser, 1979; Fraser, 1985), The My Class Inventory (MCI), a derivative of the LEI, (Fisher & Fraser, 1981; Fraser, Anderson & Walberg, 1982), the College and University Classroom Environment Inventory (CUCEI) (Treagust & Fraser, 1985), and the Classroom Learning Environment Scale (CLES) (Fraser, 1989) have been developed as classroom environment measures for use in schools to assess affective elements of classroom climates from perceptions of students. Research using these various classroom environment scales and self report methodology centers on investigations of associations between student outcomes and classroom environment psychosocial characteristics (e.g., Walberg & Anderson, 1972; Fraser, 1978, 1979; Ellett & Walberg, 1979; Moos, 1979; Haertel, Walberg & Haertel, 1981), use of classroom environment dimensions as criterion variables (e.g., Welch & Walberg, 1972; Trickett, 1978; Fraser, 1980; Levin,

1980; Talmage, et al., 1984; Wang, et al., 1984), investigations of student achievement in actual vs. preferred classroom environments (e.g., Fraser & Rentoul, 1980; Fraser & Fisher, 1983); and in practical attempts to improve classroom environments (e.g., Fraser, 1981; Fraser, Seddon & Eagleson, 1982; Fraser & Deer, 1982). These measures have provided important information for use in various types of classroom research and their validity and reliability characteristics have been well documented.

Development of instruments to measure characteristics of school environments has proceeded quite slowly. One of the earlier examples of a school environment instrument is the College Characteristics Index (CCI) (Pace & Stern, 1958) which measures student or staff perceptions of environmental characteristics such as affiliation, aggression, deference, impulsiveness, order, etc., based on behavioral manifestations of needs variables. The original instrumentation was adapted to form the High School Characteristics Index (HSCI) (Stern, 1970) for use in secondary schools.

One of the most widely used instruments developed to assess school level environmental characteristics is the Organizational Climate Description Questionnaire (OCDQ) (Halpin & Croft, 1963). The OCDQ measures teacher perceptions of four dimensions of faculty behavior (Hindrance, Intimacy, Disengagement, and Esprit) and principal behavior (Production, Aloofness, Consideration, and Trust). The resulting profile of scores is used to classify schools into six climate types; open, autonomous, controlled, familiar, paternal, and closed. The instrument, however, has been criticized as not being well suited for the study of learning environments in large, urban, or secondary schools (Carver & Sergiovanni, 1969).

Attitudinal or satisfaction scales have also been used as proxy measures of school environments as such factors have been typically seen as mediating school environmental characteristics. One such instrument, The School Survey, developed by Coughlan and Cooke (1974) has been used in attempts to provide feedback to school personnel about desirable/undesirable teacher work morale factors, and to study mediating linkages between measures of principal performance and school outcomes (Payne & Ellett, 1974).

Typically, adaptations of classroom learning environment inventories have been used in schools to gather students and teachers perceptions about school level concepts, rather than class level factors. For example, The My School Inventory (Payne & Ellett, 1974) is an adaptation of the My Class Inventory (Anderson & Walberg, 1972) in that the reference to "class" in the MCI is substituted with "school" in each of the items. Adaptations of classroom scales to schools have been considered somewhat confounding, particularly as they apply to gathering perceptions from students. For example, students are considered to be somewhat removed from the total school environment and their interactions with all school organizational members may be limited. Thus, students tend to assess elements of the school environment in terms of their individual and/or collective classroom perceptions (Fraser, 1981).

Adaptations of scales used in assessing organizational work environments, most notably Fraser, Docker and Fisher's (1989) adaptation of the Work Environment Scale (WES) (Moos, 1981) for use in schools, have been used to taps teachers' perceptions of psychosocial dimensions of the school climate. Scales include factors such as

collective involvement, peer cohesion, staff support, autonomy, task orientation, work pressure, clarity, control, innovation and physical comfort. The School Level Environment Questionnaire (SLEQ) (Rentoul & Fraser, 1983) was developed as a school environment measure which has minimal overlap with existing measures of classroom-level environments. Both instruments have been shown in studies of elementary and secondary schools to have reasonably high internal consistency, are consistent with literature on school climate and views of practicing teachers, and have been shown to differentiate among teacher perceptions in different schools (elementary and secondary) (Fisher & Fraser, 1991).

Recently, investigation of elements of the school professional supervisory subculture has provided insight into variables and variable relationships within a larger construct of the professional learning environments in schools. The Organizational Supervisory Climate Inventory for Schools (OSCI-S) (Claudet, 1993) was developed to tap teacher perceptions of organizational/supervisory interactions and its use in schools has provided data which further expands school climate variables to include professional supervisory dimensions.

Instrumentation cited above has been shown to have reasonably high validity and reliability for use in schools in measuring components of the multidimensional school climate construct. While each underlying conceptual basis is somewhat different, most are designed to capture the psychosocial characteristics of the school environment as perceived by organizational members. Although psychosocial elements and interactions within a school are important, particularly as they relate to motivation and work morale

(Miskel & Ogawa, 1988), they constitute only small element of the larger professional environment for learning. More recent conceptualizations of schools as learning communities (e.g., Brandt, 1992; Glickman, 1992) seem to require a broader focus on the continuous process of individual (student/adult) and organizational learning in school environmental contexts. Such a focus involves re-conceptualizing school environments in terms of learning which may include psychosocial interactions, but which more strongly focuses on professional norms involving communications for learning, emphasis on individual and group reflections for learning, goal consensus and cultural norms that emphasize learning, and on professional supervisory learning interactions.

Research on Self and Organizational Efficacy

Lawson and Ventriss (1992) have investigated the link between individual and collective perceptions of self and organizational efficacy and change in public sector organizations. These researchers have posited that such efficacies can be enhanced at the individual and organizational levels when cultural changes involve the promotion of higher level organizational learning among members.

Based on Lewin's (1947) theoretical implications that learning is mediated by an individual's interactions with and perceptions of the external environment, it seems important to investigate elements of these interactions and perceptions in order to understand the nature and complexity of learning in school professional environments.

Conceptual/Theoretical Bases of Efficacy

A key self-perception construct posited as important to social learning is self efficacy. As conceptualized by Bandura (1977), self efficacy is an important cognitive

mediator of the acquisition and regulation of behavior and it is grounded in cognitive processes that lead to learning from the observation of response consequences. In describing how self efficacy mediates linkages between cognition and behavior, Bandura (1977) differentiates between "outcome expectancies" (an individual's estimate that a given behavior will result in a given outcome) and "efficacy expectations" (the belief that one can successfully execute a behavior to accomplish or produce an outcome). From this perspective, the self efficacy construct and efficacy expectations "determine how much effort people will expend and how long they will persist in the face of obstacles and aversive experiences." In addition, the personal efficacy construct is believed to encompass a personal competence/capability component that interacts with outcome expectancies. Thus, expectations alone will not produce desired performance if capabilities are insufficient. In addition, in describing the role of external incentives, Bandura states that "there are many things that people can do with certainty of success that they do not perform because they have no incentives to do so." Therefore, perceived self-efficacy (Bandura, 1977; 1982; 1986; 1993) is concerned with judgements of what one can do with whatever resources one possesses rather than perceived capability to perform specific skills themselves. Thus, judgements of personal capabilities (efficacy expectations), along with perceptions that a behavior will produce a certain outcome (outcome expectancies), given environmental constraints mentioned above, subsequently effect an individual's motivation to organize and execute courses of action required to attain designated types of performance.

Bandura (1977) also refers to efficacy dimensions of generality, magnitude and strength. Generality of the efficacy construct refers to the extent to which competency and motivational elements span a variety of situations; strength is reflected in perceived degrees of effort (relative to perceived competence and motivation) needed to accomplish tasks; and magnitude refers to perceived difficulty of tasks, given self perceptions of competency. Complex interactions among these dimensional perceptions effect individual performance. For example, Bandura (1977) has suggested that individuals can believe that certain behaviors will produce certain outcomes, but if they do not believe that they can perform the necessary activities, they will not initiate the relevant behaviors, or if they do, they will not persist.

In accordance with Bandura's (1977) motivational constructs of efficacy, high self or organizational efficacy may be characterized by motivation toward goal attainment. Such motivation consists of elements of degree of effort, degree of persistence in spite of obstacles, and degree of willingness to persevere and pursue additional goals in spite of failure. Considered collectively, the personal efficacy construct provides a useful means to understand the motivation and behavior of individuals and groups within organizations.

Efficacy Research in Organizations and Schools

Teacher self efficacy has been investigated in a variety of studies (e.g., Ashton & Webb, 1986; Dembo & Gibson, 1984; Gibson & Dembo, 1984; Woolfolk & Hoy, 1990) and instrumentation has been developed to assess teacher perceptions of self-efficacy as it pertains to teacher behaviors relative to students at the classroom level

(e.g., classroom behavior management) (Gibson & Dembo, 1984; Emmer & Hickman, 1991). Such measures, however, have focused on situationally-specific behaviors and instances, rendering inferences made from such measures difficult to generalize across multiple situations/instances.

There are few known studies that have investigated the constructs of self and organizational efficacy as each pertains to teacher perceptions and behaviors within the larger school professional learning environment. Research in psychology has suggested that beliefs of high efficacy enhance motivation (Bandura & Cervone, 1983), promote higher goal-setting behaviors, and influence persistence and commitment to goal accomplishment (Latham & Locke, 1986; Locke, Shaw, Saari, & Latham, 1981; Mento, Steel, & Karren, 1987). As an extension of these ideas, Lawson and Ventriss (1992) have suggested that for organizations in the process of cultural change, setting and promoting public commitment to specific organizational goals may serve to enhance both shared beliefs and values about the ability of the organization to achieve these goals as well as to influence how member view themselves as effective within the organization. Thus, strong organizational cultures stressing innovation and change may enhance individuals' perceived self-efficacy as well as collective efficacy, that is, the individual member's assessment of the ability of the organization to execute specific performances (Lawson & Ventriss, 1992).

Similarly, a few studies of collective efficacy in schools (e.g., Bandura, 1993) have reported that school staff members who collectively perceive themselves capable of promoting student academic success actually infuse their schools with a positive

ambience for achieving academic goals. As a result of such findings, Bandura has added an additional, collective dimension to his own research on efficacy. Thus, his recent research on efficacy in schools has typically focused on two approaches for determining collective efficacy as it relates to organizational performance using schools as the units of analysis. One approach involves aggregating at the school level, teachers' beliefs in their efficacy to promote learning in their own classrooms. A second approach involves aggregating teachers' beliefs in their schools' capability as a whole to promote learning. Both approaches have most recently been used in research from an organizational evaluative standpoint using student collective achievement as a measure of organizational performance in schools. However, little research has been done on collective perceptions of efficacy as it relates to other organizational level goals, rather than simply to promotion of student achievement.

Research has repeatedly shown that understanding organizational effectiveness involves consideration of both individual and collective interactions in the environment (Bandura, 1993; Lawson & Ventriss, 1982). If the efficacy construct can be conceptualized in terms of perceptions of motivation of both individual and of collective efforts in working toward goal attainment in the school, it may serve as a useful variable in explaining interactions related to achievement of global, organizational goals which go beyond student achievement. And, as Wood & Bandura (1989) point out, perceptions of collective and self-efficacy may also be strengthened, not only by individual goal attainment, but by observation of others within an organization (leaders or peers) performing at high levels of such attainment and by public feedback relative

to specific collective performances. Perceptions are also enhanced by member beliefs that the organization is capable of change and that members share in decision making relative to goal setting and direction of group performance (Wood & Bandura, 1989).

Thus, in order to further understand change and effectiveness in schools, it seems important to develop frameworks for investigation of multiple indices of school learning environment characteristics which incorporate individual and organizational perceptions and interactions. Few systematic studies have been conducted to determine what specific change processes or personal variables (such as efficacy) may mediate the impact of organizational productivity (Offermand & Gowing, 1990). Furthermore, few instruments have been developed to measure personal constructs (such as efficacy) from a more global, organizational perspective rather than from classroom-specific or student-specific perspectives.

One recent study, however, by Chauvin (1992), suggests that the personal variable of teacher receptivity to change may indeed mediate change processes within schools as organizations.

Research on Receptivity to Change

Research on change efforts in schools (e.g., Fullan, 1985, 1990, 1993; Fullan, Bennett & Rolheiser-Bennett, 1990; Rossman, Corbett & Firestone, 1988) has been concerned with individual and collective attitudes and beliefs reflecting shared norms and culture as these cultural elements have provided information useful in targeting planned change reform efforts (Corbett, et al., 1987; Hall & Hoard, 1987; Kaslow & Giacquinta, 1974; Waugh & Punch, 1985). These collective shared norms and beliefs,

unique to the school professional learning environment, may either be consonant with or in conflict with planned change in a school. Thus, the more in conflict change efforts are with cultural norms and beliefs, the greater the individual and thus organizational resistance to the change and the less likely that goals of the effort will be reasonably met (Corbett et al., 1987; Deal, 1990; Rossman, et al., 1988).

Fuller, Wild, Rapoport & Dornbusch (1982) have related teacher receptivity to change to teachers' self-perceptions of efficacy. They have also suggested that understanding the relationship between teacher perceptions of organizational (interactive or group) and performance (individual) efficacy and receptivity is important in interpreting the effectiveness of change at the school level. For example, if the perception of impact of change efforts impairs either the individual or the organization's ability to perform or accomplish goals, then the potential for negative reactions and resistance to the innovation is present (Chauvin, 1992, Fuller, et al., 1982). Sarason (1971), in discussing school culture and change, points to the existing "regularities" in school life as ingrained patterns of behaving and believing based on the existence of both sacred and profane norms. Durkheim (1965) defines sacred norms as essentially immutable, efficacious and enduring thus, they are less susceptible to change. Profane norms, on the other hand, represent the transitory side of everyday life and thus are more susceptible to change as they are in a state of temporary adjustment and are continuously being redefined. Thus, Corbett, et al. (1987) asserts that a planned change must be able to co-exist with existing cultural norms, or existing norms (particularly the sacred) must change in order for the innovation to become meaningful in the school

environment. Thus, it follows that teachers may be most resistant to a planned change effort if it is perceived to violate the sacred norms of the school culture, may be highly resistant to professional learning as it pertains to elements of the effort,
and may perceive that such obstacles prevent the accomplishment of the goals pertaining to the effort.

Factors that contribute to an individual's degree of receptivity to planned change include, not only perceptions of beliefs, attitudes, and norms in the organization, but perceptions of economic "costs" in terms of time, money and efforts and socio-political context issues and interactions (Corbett, et al., 1987; Elmore, 1987; Waugh & Punch, 1985). Waugh and Punch (1985) found that overall feelings about a change which are formed as a result of all perceptions, influence behavior intentions. However, actual behavior, such as in forced compliance, may not always parallel receptivity to a change effort. For example, a school may appear to implement an innovation (e.g., a cooperative learning curriculum) by making changes in some of the easily alterable norms (e.g., the use of new materials), however, changes in sacred, more deeply entrenched, norms (e.g., attitudes about student learning) are not evident as ways of doing things proceed in much the same way as was evident prior to implementation of the innovation.

Considered collectively, results of studies of planned change suggest that teachers' receptivity to change in schools can be understood in terms of their beliefs about the degree to which the change will alter established norms and the degree to which each individual perceives that he/she can be effective in carrying out the change

without extreme economic or socio-political costs. Since meaningful change does not appear to take place without learning, understanding professional learning in terms of personal variables such as receptivity to change and perceptions of self efficacy and the interactions of these personal variables with organizational variables, may be significant in facilitating learning and change schools environments.

Perspectives and Research on Effectiveness in School Organizations

Researchers have struggled, particularly during the past two decades characterized by educational reform and change, with conceptual definitions of school effectiveness as well as with indices of measuring such effectiveness. In this study of school change and effectiveness, it is assumed that productive change in schools does not occur without new learning which ultimately enhances school effectiveness. Thus, investigation of conceptual and operational definitions of school effectiveness were conducted in order to solidify understandings of the construct as it applies to professional learning for teachers and change in schools. The following sections provide an overview of conceptual bases of school organizational effectiveness and typically-used school effectiveness constructs.

Organizational Effectiveness

Theoretical approaches to school organizational effectiveness have largely been centered around use of either goal models or systems resource models in order to guide comparisons of the multi-dimensional elements of the construct. Since there are a variety of criteria that might be used to examine linkages between school environmental variables and effectiveness, Hoy and Miskel (1987) suggest that to ask a global question

about whether a school is effective or ineffective is virtually a useless exercise. Any organization can be deemed effective relative to a single criteria and, at the same time, ineffective relative to other criteria for effectiveness.

One model for integrating organizational effectiveness constructs which has been quite useful in research on school organizations was developed by Paul E. Mott (1972). Mott's model is based on organizational outcomes and is consistent with the integrated goal system resource model of social systems derived from the Parsonian framework (Parsons, 1954). Mott's model satisfies the four basic problems of adaptation, goal attainment, integration and latency that Talcott Parsons describes as essential for all social systems if they are to grow and develop (Parsons, Bales and Shils, 1953). Five components of Mott's model, quality and quantity of product, efficiency, adaptability and flexibility, determine the ability of an organization to mobilize its centers of power for action to achieve goals and to adapt. Thus, according to Mott's model, effectiveness of an organization in terms of each of the five components is determined by consideration of a variety of organizational outcomes. This model, applied to schools, implies that an effective school organization produces a high quantity and quality of various products (not only student achievement), generates more positive attitudes, adapts well to environmental constraints, and deals more potently with internal problems (Hoy and Miskel, 1991).

Instrumentation developed by Mott for a variety of organizational settings was modified for studies in schools (Miskel, Fevurly and Stewart, 1979; Miskel, Bloom and McDonald, 1980). Research using The Index of Perceived Organizational Effectiveness

indicates that effectiveness is greater when climate is open and decision making is decentralized (Claudet, 1992; Johnson, 1990; Logan, 1989; Miskel, Fevurly and Stewart, 1979; Miskel, McDonald and Bloom, 1979, 1980). Thus, the constructs inherent in Mott's model and this measure seem appropriate for use in investigating relationships in this study between characteristics of a school professional learning environment (which includes climate variables) and indices of organizational effectiveness.

School Effectiveness and Productivity Research

Conceptions of school effectiveness have been popularized by the recent history of school effectiveness and school effects studies. Traditional school effectiveness studies (e.g., Brookover and Lezotte, 1979; Edmonds, 1979; 1983; Weber, 1971) have been primarily concerned with student-related outcome (achievement) definitions of school effectiveness in view of school socioeconomic characteristics. This body of research on school effectiveness was initiated in response largely to national and state political foci and reforms aimed at school improvement.

The school effectiveness movement gained momentum on the national scene largely as a result of reactions to James Coleman's 1966 report which became associated with the phrase "schools don't make a difference" (Bossert, 1988). As a result of findings of this landmark study, the academic research on effective schools began with a focus on school improvement and policy responsive strategies for enhancing effectiveness (Richards, 1991). During the 1970s, following reports by Mosteler and Moynihan (1972) and Jencks et al, (1972) which confirmed Coleman's

findings that differences in student achievement are more strongly associated with characteristics other than school-based variables, research on school effects and school effectiveness gained widespread attention as researchers set out to prove that schools could make a difference (e.g., Brookover & Lezotte, 1979; Edmonds, 1979, 1983; Weber, 1971: Rutter, 1987, etc.). The early effective schools research pursued somewhat of a utilitarian strategy as the following typical procedures were used in conduction of such research: 1) Selection of a valid and reliable set of indicators and norm-referenced achievement tests to verify effectiveness outcomes; 2) Identification of the "critical core" of characteristics essential to effective schooling and distinguishing them from others which are detrimental or indicative but not essential; and 3) Determining the appropriate policies and implementation strategies necessary to transform ineffective schools into effective schools (Richards, 1991; p.28).

According to numerous studies related to this body of research, schools can be organized to promote high achievement in basic skills if they follow a simple formula which was communicated as a prescription for success. The formula includes five factors: 1) strong instructional leadership by principals; 2) high expectations for student achievement; 3) a safe and orderly school climate; 4) clear instructional goals; and 5) frequent use of student achievement data to evaluate program success (Weber, 1971; Edmonds, 1979; General Accounting Office, 1989). School level characteristics found in some inner-city schools that substantially decreased basic skill achievement differences among socioeconomic groups were the basis for the formula but,

generalization of this model to schools with differing characteristics has been questioned (e.g., Berry and Ginsberg, 1991; Good and Brophy, 1986; Purkey and Smith, 1983).

Historically, school effectiveness research has been fraught with multiple methodological, conceptual, measurement, and consideration of context problems (Good & Brophy, 1986; Purkey & Smith, 1983; Hoy & Ferguson, 1985; Ralph & Fennessey, 1983; Rowan, Bossert & Dwyer, 1983; Teddlie & Stringfield, 1993; Wimpelberg, Teddlie & Stringfield, 1989). Given these difficulties it seems that further research may be needed to extend studies of school effectiveness to include consideration of within school variability, situational factors and context, and interactions of personal and organizational variables mediating school outcomes.

In addition to the body of research on school effectiveness, recent, large scale meta analyses and summaries of the effects of schooling have illustrated that most studies of school-related effects have primarily focused on student-related outcome concerns (Bossert, 1989; Wang, Haertel, & Walberg, 1994) despite the fact that there are abound widely known correlates and predictors of student achievement that extend beyond school environments (e.g., student aptitude, student motivation, educational quality of the home environment, etc.). In addition, a variety of other recent studies (e.g., Claudet, 1993; Johnson, 1991; Logan, 1990) have shown that there are sets of important school structural, cultural and learning environment variables that can be meaningfully linked to the study of school organizational effectiveness quite apart from any linkages to student-related outcomes (e.g., achievement and attendance). Thus, in this study, student-related considerations (student achievement and holding power) are

considered important school outcome variables (Wang, Haertel, & Walberg, 1994), but are subsumed under the larger, more comprehensive construct of school organizational effectiveness.

Summary

Chapter 2 presented a review of the literature relative to major components in the Model of School Change and Effectiveness. Pertinent perspectives in the literatures on schools change and reform, school organizations, personal learning, learning environments, self and organizational efficacy, receptivity to change, and organizational and school effectiveness were provided. Syntheses of the literatures suggest that change in schools for the purposes of rendering them more effective has been quite difficult given the complexity of interactions in schools as open social systems. Studies of change and effectiveness have been fraught with difficulty as elements of personal and environmental factors interact to accept, reject or absorb innovation attempts. Results of such interactions have been evidenced in the transformation of well-intended initiatives into contextually specific outcomes that have been difficult to predict or explain in ways that contribute to either theoretical or practical understandings of school organizations. This study seeks to integrate school level and personal constructs in a framework useful for understanding effectiveness in terms of learning and change in schools and to provide insights toward development of a more comprehensive model of school effectiveness.

Chapter 3 describes the research methodology and procedures employed in the study.

CHAPTER 3: DESIGN, METHODOLOGY AND PROCEDURES

Chapter three contains a discussion of the research design, instrumentation, data collection and analyses procedures used to address primary and supplemental research questions in the study.

Research Design

The design for this study was an ex post-facto design in which the variables were assigned and not manipulated (Campbell & Stanley, 1963). The study was designed to explore the relationships among professional learning environment characteristics, teacher self and organizational efficacy, teacher receptivity to change and multiple indices of school effectiveness and productivity.

Independent Variables

Independent variables are listed below, followed by the measures which were used to operationalize each in this research design: 1) professional learning environment characteristics (Professional Learning Environment Inventory) (PLEI) (Loup, Ellett, & Hill, 1993); 2) teacher self and organizational efficacy (Teacher Self and Organizational Efficacy Assessment) (TSOEA) (Loup & Ellett, 1993); and 3) teacher receptivity to change (Modified Receptivity to Change Inventory) (RCI) (Crisafulli, 1982; Hennigar, 1979). For some supplemental analyses, selected independent variables were conceptualized as dependent variables.

Dependent Variables

Dependent variables within the design were: 1) organizational effectiveness (Index of Perceived Organizational Effectiveness) (IPOE) (Miskel, Fevurly, & Stewart,

1979; Mott, 1972); and 2) two indices of school productivity (Student Achievement: Normal Curve Equivalent Scores (NCE) on Reading and Math Batteries of the Stanford Achievement Test (Eighth edition, Grades 1-8); and School Holding Power: Percentages of Average Daily Attendance (SADA).

Sample

The sample for this study was drawn from schools in all six geographical regions comprising a large, predominantly urban/suburban school district in a southeast region of the United States. Ninety schools considered representative of demographic characteristics of the total school district (e.g., size, level, urban/suburban, SES, etc.) were selected by district administrative personnel as potential participants in the study. District policy mandated that individual school participation in the study must be voluntary. Therefore, 53 of the originally identified 90 schools volunteered to participate in the study. Within each school, one-half of the population of teachers was systematically selected from the school's faculty roster to participate in the study (every other teacher on an alphabetical teacher roster in each school). This procedure yielded a total survey sample of 1431 teachers. Usable data were received from 1041 teachers in the sample of 53 schools. Participating schools included 27 elementary, 16 middle, 10 secondary schools.

A separate sample of 52 teacher volunteers in two schools (one elementary and one middle school) in an suburban/rural school district in Louisiana was used to examine the test-retest reliability (stability) of the Professional Learning Environment Inventory and the Teacher Self and Organizational Efficacy Assessment instruments.

Data Collection Procedures

Survey Data

Individual school packets containing instrumentation for the independent variables (PLEI, RCI, TSOEA, IPOE), a demographic information form and instructions were packaged and mailed to each school principal in the study sample. Instrument packets were included for one-half of the total number of teachers in each school. As per the sampling design, data collection packets were distributed to every other teacher as listed on the school faculty roster. Given the relatively large numbers of teaching faculty in most schools in this district, concern for data collection efficiency, and the nature of the subsequent data analyses, obtaining responses from one-half of the teachers in each school was viewed as appropriate for the overall design of the study.

Respondents were given from three to five days to complete the instrument set and a follow-up reminder was sent to the school principal at the end of day five. Instruments were completed anonymously and packets were returned to a central data collection location in each school. A contact person at each school (other than the school principal such as a school counselor, librarian, lead teacher, etc) was designated by the principal to assist in collecting completed survey packets and enhancing survey returns. Completed packets were boxed at the school level and returned via stamped, self-addressed return mail envelopes for data processing and analysis.

Student Achievement and Attendance Data

Student achievement data for the annually administered standardized achievement test (Reading and Math subtests of the Stanford Achievement Test Battery for grades 1-8 only) were provided by the school district. For each grade level for each school, Normal Curve Equivalent (NCE) scores in Math and Reading were calculated from district school profiles for the Spring 1992 school testing period. In addition, Student Average Daily Attendance (SADA) data for both teachers and students was obtained from the school district. The district's SADA index was constructed as a mean percentage of student attendance for each sample school based on all data collection periods for the 1991-1992 school year. The SADA index was used as a proxy measure to operationalize the school productivity dependent variable of holding power.

School characteristics data for the 1991-92 school year and student achievement scores for the Spring 1992 testing period constituted the most recently compiled data available from the district for use in this study. In addition, a review and comparison of school profile data from the 1990-91 and 1991-92 school years indicated that these data were reasonably stable across the specified time periods and thus could be viewed as approximate indices of school attendance and achievement for the 1992-93 school year.

Instrumentation

A teacher questionnaire consisting of four instruments was used for data collection in this study. The four instruments included in the questionnaire were as follows: 1) the Professional Learning Environment Inventory (PLEI) (Loup, Ellett, &

Hill, 1993); 2) the Teacher Self and Organizational Efficacy Assessment (Loup & Ellett, 1993); 3) a modified version of the Receptivity to Change Inventory (RCI) (Crisafulli, 1982; Hennigar, 1979); and 4) the Index of Perceived Organizational Effectiveness (Miskel, Fevurly, & Stewart, 1979; Mott, 1972). A copy of each of the data collection instruments is included in the complete questionnaire shown in Appendix A. Tables A.1 and A.2 provide summaries of original instrument scale and item information for the PLEI and TSOEA instruments included in the teacher questionnaire used in this study. Item numbers in this table can be cross referenced with items on the original questionnaire in Appendix A.

Discussion of the historical development, structure and psychometric properties of each of the survey instruments used in the study is included in the sections that follow.

Professional Learning Environment Inventory (PLEI)

The Professional Learning Environment Inventory (PLEI) (Loup, Ellett, & Hill, 1993) is a self-report instrument designed to measure teachers' perceptions of multiple characteristics of the professional learning environment of the school in which the teacher works. As conceptualized in Chapter 1, professional learning occurs within the larger school environment which is characterized by interactions of individuals with factors, events and/or conditions existing in that environment. Estimating the quality of these factors/events in terms of learning is difficult as individual judgements often vary due to the complexity and uniqueness of the interaction of personal and organizational factors in the learning process. However, there is considerable evidence

in past large-scale, school-based studies that frequency and performance effectiveness (quality) ratings yield highly similar descriptive statistical results and attain criterion-related validities of approximately equal magnitude and direction (Ellett, 1975). Thus, the professional learning environment construct is operationalized by the PLEI in terms of teacher perceptions of the frequency of occurrence of selected factors, events and conditions in the school environment which enhance teacher professional learning.

The cultural/normative factors, events and conditions which characterize the professional learning environment in schools were originally conceptualized to include factors or conditions existing in the school culture which define expectations for and enhancement of learning in the school community. These norms included structural elements that foster or enhance professional learning (e.g., conditions which allow for teacher professional decision making and for teacher, administrator, and district roles that involve professional interactions and promotion of professional activities) and learning elements or opportunities for professional learning (e.g., professional communications about and participation and engagement in learning activities). In addition, the original PLEI was designed to be somewhat sensitive to perceptions of the extent to which professional learning experiences, opportunities, and activities are supported by district-level factors external to the school.

Instrument Development Activities

An initial draft version of the PLEI was developed during the spring of 1993 using the following general procedures:

1. An initial item pool was developed through focused workshops and interviews with classroom teachers and administrators and through reviews of related literature and learning environment measures available for use in schools.

2. A review of teacher and administrator input was conducted to determine consistency of ideas about characteristics of the professional learning environment of schools.

3. A revision of the content and format of items to be included in the instrument was conducted utilizing input from various selected expert educators.

4. A final review of instrument items and response format was completed by a small number of selected university measurement faculty, teachers, and school administrators.

As a result of these instrument development activities, the form of the PLEI used in this study was developed. A complete copy of the original data collection form of the PLEI is included in Appendix A. Item numbers defining each of the original PLEI subscales are included in Table A.1 in Appendix A.

Validity

Construct validity characteristics (Messick, 1989) of the PLEI were empirically examined using first, a series of factor analyses to explore/define the PLEI subscale constructs and secondly, by examining the criterion-related validity of the PLEI through conducting a series of bivariate and multivariate correlational analyses between the PLEI subscales and various indices of organizational effectiveness and school productivity used in the study.

As mentioned in the description of instrument development activities for the version of the PLEI used in this study, content validity was established through an review of the literature on adult learning, conceptions of professionalization of teaching, elements of school culture and climate, and studies of school and organizational learning environments. Reviews of instruments developed to measure school environmental elements were also conducted along with initial probes and final reviews by teachers, administrators and college faculty. Instrument reviews focused on item content and professional learning characteristics seen as important elements of the total school environment. Instrument final drafts were also reviewed for clarity of wording of item content and response formats and for independence of the item constructs.

Reliability

Internal consistency reliability characteristics of the PLEI were explored using only complete data (teacher files that contained no missing values) (n=687) from the total sample of teacher data. Cronbach Alpha reliability coefficients were computed for each of the factored subscales of the PLEI.

Test-retest reliability (stability) coefficients were computed for each of the factor analyzed PLEI subscales for the separate sample of teachers that participated in the pre-post administration of the PLEI. Pre and post administration of the PLEI for this sample of teachers was conducted approximately two weeks apart.

Structure/Scoring

The original PLEI instrument consisted of 42 items, each of which taps teacher perceptions by using a four-point, forced-choice Likert scale indicating the frequency

of occurrence/existence in the school environment of the particular factor(s), event(s), or condition(s) noted in the item statement. After reading each item, teachers were asked to indicate the frequency of occurrence/existence of the factor/event/condition in the school by selecting one of four choices ranging from: 1=Factor, Event, Condition Does Not Occur/Exist; to 4= Factor /Event/Condition Almost Always Occurs/Exists.

The original PLEI instrument items were developed in accordance with the MSCE framework guiding this study (Chapter 1, Figure 1). There were no apriori assumptions about item/subscale aggregations other than the global concern that the items seemed to be reasonable indicators in of characteristics of structural, cultural, and learning opportunities in schools depicted in the original MSCE. Therefore, a total instrument score for the original PLEI might range from 42 - 168. A higher PLEI instrument score is indicative of a school environment which is perceived as more supportive of professional learning than one receiving lower PLEI instrument scores.

Teacher Self and Organizational Efficacy Assessment

The Teacher Self and Organizational Efficacy Assessment (TSOEA) (Loup & Ellett, 1993) is a self-report instrument designed to measure perceptions of teacher self and organizational efficacy. The instrument requires teachers to make judgements of their own abilities to organize and execute courses of action required to accomplish goals (Bandura, 1977; 1978; 1992). The TSOEA also requests teachers to make these same judgements about their colleagues' collective capabilities to execute similar actions, thus establishing an index of teachers' views of organizational efficacy. A collective sense of organizational efficacy as perceived by organizational members has

also been described in business and industry contexts (Lawson & Ventriss, 1992). The TSOEA was designed as a holistic index of teacher self and organizational efficacy reflecting three key concepts of motivation derived from the theoretical framework for self efficacy as initially described by Bandura (1977). These key concepts are related to goal accomplishment and include elements of personal motivation such as; 1) degree of energy or effort put forth to accomplish goals, 2) degree of persistence and/or perseverance put forth to pursue goals in spite of uncertainty; and 3) the extent to which failure to accomplish goals results in increase or decrease in subsequent efforts toward accomplishment of future goals. Thus, high personal or organizational efficacy in this study is characterized by a high degree of individual or collective persistence in spite of uncertainty, and increased or continued effort toward further goal accomplishment in spite of repeated failure.

Bandura (1977), in his theory of self efficacy, views the construct as a situationally-defined perception rather than a global, psychological characteristic of a person (or organization). Thus, assessment of efficacy perceptions across situations in schools seemed necessary to provide a more comprehensive view of the construct as it relates to various types of personal and organizational goals. In development of the TSOEA, the concern for assessment of efficacy perceptions across situations was accommodated through the use of different types of goal statements which reflect broad, ongoing, pervasive school-related concerns that permeate daily interactions and teachers' roles in schools (e.g., goals related to parental involvement, enhancing learning for students, establishing teacher/administrator relationships, and maintaining

a vision of what the school ought to accomplish). This approach is somewhat different and more global than traditional approaches to measuring perceptions of efficacy in classrooms. Such approaches tend to rely on perceptions which are more specific individual domains (i.e., classroom discipline) and behaviors (i.e., redirecting a student who is disruptive) in order to assess teacher self efficacy in the classroom (e.g., Gibson & Dembo, 1984).

Validity

Construct validity characteristics of the TSOEA were empirically examined using first, a series of factor analyses procedures to explore/define the TSOEA subscale constructs and secondly, by examining the criterion-related validity of the TSOEA through conducting a series of bivariate and multivariate correlational analyses between the TSOEA subscales and various indices of school organizational effectiveness and school productivity used in the study.

As mentioned in the description of instrument development activities for the version of the TSOEA used in this study, content validity was established through an reviews of the literature related to efficacy (in education and psychology), reviews of instrumentation developed to measure the efficacy construct (self and organizational efficacy), and through initial probes and repeated and final reviews by a small number of selected teachers, administrators and college faculty. Review of instrument items focused on the applicability or relevance of goal statements to individual teachers and school organizational goals. Instrument drafts were also reviewed for independence of

key questions and goal statements and clarity of wording of item content and response format.

Reliability

Internal consistency reliability characteristics of the TSOEA were explored using only complete data (teacher files that contained no missing values) (n=687) from the total sample of teacher data. Cronbach Alpha reliability coefficients were computed for each of the factored subscales of the TSOEA.

Test-retest reliability (stability) coefficients were computed for each of the factor analyzed TSOEA subscales for the separate sample of teachers who participated in the pre-post administration of the TSOEA. Pre and post administration of the TSOEA for this sample of teachers was conducted approximately two weeks apart.

Structure/Scoring

Respondents completed the TSOEA by considering each of three key questions, reflective of Bandura's (1977) motivational concepts, in relation to perceived personal efforts and collective efforts of other teachers toward accomplishment of four types of goals in their roles as professionals in schools. The key questions for each goal were as follows: 1) How much energy/effort is put forth in your school to accomplish each goal?; 2) If there are difficult or uncertain obstacles to overcome in accomplishing a goal, how much persistence/perseverance would be put forth to accomplish each goal?, and 3) To what extent would failure to accomplish a goal result in decreasing effort to accomplish future goals?

The four goal statements included on the TSOEA are as follows: Goal 1) to enhance the learning of students; Goal 2) to increase the involvement of parents in their children's learning; Goal 3) to establish and communicate a vision of what the school ought to accomplish; and Goal 4) to establish professional relationships with administrators and other teachers.

Each of the three questions is applied to each goal statement independently and a teacher is asked to make two judgements for each goal: 1) a judgement of self-efficacy (e.g., my effort, my persistence); and 2) a judgement of organizational efficacy or the teacher's view of the collective efforts of all teacher colleagues in the school (e.g., efforts/persistence of other teachers in the school). The TSOEA response scale varies from: 1=Little or No (Effort, Persistence, Decrease in Effort) to 5=A Large Amount of (Effort, Persistence, Decrease in Effort) for each different key question as it relates to each of the four organizational goals. For the original TSOEA instrument, a total of 24 instrument judgements were made (12 for teacher self-efficacy perspectives and 12 for teacher organizational-efficacy perspectives). Total scores for either the TPSE or TPOE original instrument subscale ranged from 12 to 60.

High scores on instrument items are associated with high self and/or organizational efficacy. Items for the last key question (Items 17-24) are reverse coded. A copy of the TSOEA which was used in this study is included in Appendix A. Instrument items and original subscale classifications are included in Table A.2.

Modified Receptivity to Change Inventory

The Receptivity to Change Inventory (RCI) (Crisafulli, 1982; Hennigar, 1979) has been designed to measure teacher perceptions of the extent to which they would be willing to support/adopt suggestions for change in their schools. The original version of the RCI was developed by Hennigar (1979) for use in assessing attitudes of middle management administrators (e.g., school principals). Crisafulli (1982) extended Hennigar's use of the RCI to assess teachers' receptivity to change (Chauvin, 1992). The original form of the RCI consisted of 50 items and it was later content updated and somewhat modified by Chauvin (1992). The modified version of the RCI used in this study is a shortened version of the form developed through recent large-scale factor analyses by Chauvin (1992).

Validity

The validity and reliability of the RCI has been investigated and positively documented in multiple studies (Crisafulli, 1982; Hennigar, 1979; Chauvin, 1992) and is considered sufficient to accept the psychometric integrity of the instrument.

Hennigar (1979) employed a panel of school administrators to assess content validity followed by a series of pilot testing, factor analyses and revisions of the instrument. Factor analysis results supported a unidimensional construct of receptivity to change. Results reported in the three studies (Crisafulli, 1982; Hennigar, 1979; Chauvin, 1992) support the RCI as a valid and reliable measure for identifying relationships between receptivity to change and selected variables such as principal

behavioral styles (Hennigar, 1979; Chauvin, 1992) and organizational climate (Crisafulli, 1982).

Factor analytic results reported in Chauvin's (1992) study lend support for a two dimensional construct of receptivity to change and some modifications in item construction. The modified version of the RCI used in this study was derived from Chauvin's factor analyzed subscales which conceptualize receptivity as a two-dimensional construct. The dimension of Superficial/Behavioral Change (SBC) defines receptivity to changes which, for the most part, require few adjustments in core teacher beliefs, values or routines. In contrast, the dimension of Cultural/Normative Change (CNC) defines receptivity to changes which require major adjustments in ways of thinking, beliefs, values, and, perhaps, major changes in school or classroom routines.

Items on each of the factor analyzed RCI subscales (CNC, 26; SBC, 19) were reviewed and a representative sample (ten items for the CNC subscale, and eight items for the SBC subscale) for each were selected for use in the modified version of the RCI in this study. Representativeness concerns included the following: 1) Selection of a sufficient number of items for each subscale to maintain subscale reliability; 2) Prioritization of items for each subscale based on comparison of the magnitude of item factor loadings obtained in Chauvin's study; and 3) Inspection of item content for each subscale in order to obtain a sufficient variety and number of items to construct an conceptually sound measure of receptivity and to minimize the length of the total task for teachers.

Reliability

Hennigar (1979) reported a .91 internal consistency reliability coefficient (Kuder-Richardson) for the RCI using school administrators as the units of analysis. Crisafulli (1982) reported a Cronbach Alpha coefficient for the RCI of .92 using teachers as the units of analysis. Similarly, Chauvin (1992) reported Cronbach Alpha coefficients of .90 for the total RCI and .86 and .81 for the RCI subscales of Superficial/Behavioral Change and Cultural/Normative Change using teachers as the units of analysis.

Structure/Scoring

The modified version of the RCI used in this study contained 18 items distributed over two factored subscales: 1) Superficial/Behavioral Change (8 items) ; and 2) Cultural/Normative Change (10 items). Items included on this modified version were selected from results of the Chauvin (1992) study using the procedures described above. Each RCI item is a suggestion of a change in school policy, rules, conditions, etc. Respondents made judgements about each RCI item using a five-point Likert scale ranging from: 1=I Definitely Would Not Support the Suggestion (I am very much opposed to the idea and I am against such a change.); to 5=I Would Support the Suggestion (It is obviously a good idea and should be done.). Scores on each of the subscales can range from 8 through 40 for the SBC subscale and from 10 through 50 for the CNC subscale with higher scores indicating that a teacher is more receptive to change. The modified 18 item version of the RCI used in this study is included in the teacher questionnaire packet in Appendix A.

Index of Perceived Organizational Effectiveness

The Index of Perceived Organizational Effectiveness (IPOE)(Miskel, Fevurly, & Stewart, 1979) is a derivative of Mott's (1972) Index of Organizational Effectiveness that was later modified for use in schools. Mott's model of organizational effectiveness reflects organizational outcomes which are consistent with the integrated goal-system resource model of social systems derived from the Parsonian (1953) conceptual framework. Parson's framework states that four basic organizational functions; adaption, goal attainment, integration and latency, are essential for all social systems if they are to grow and develop. Components of the model lend themselves well to studies of school organizations. In accordance with Mott's model, the IPOE is an outcomes measure of the overall effectiveness of the school as an organization. School organizational effectiveness is rated by respondents along four dimensions consistent with Parson's conceptualization of key organizational functions related to effectiveness: 1) quantity and quality of product; 2 efficiency; 3) adaptability; and 4) flexibility.

Validity and Reliability

Extensive studies have been completed on the validity and reliability of the IPOE (Miskel, Fevurly and Stewart, 1979; Hoy and Ferguson, 1985; Logan, 1990; Johnson, 1990; Claudet, 1993). Initial studies reported high reliability coefficients for the IPOE ($r=.89$) (Miskel, Fevurly, and Stewart, 1979). Subsequently, more recent studies with large samples of teachers and schools, further document the replicated high reliability of the IPOE (Logan, 1990; Johnson, 1991; Claudet, 1993).

Structure/Scoring

The four IPOE dimensions are operationalized by two items each for a total of 8 instrument items. For each item, respondents select one from among five alternatives that best characterizes personal perceptions of the extent to which the school attains objectives and accomplishes tasks defining the four key organizational functions described above. Total instrument scores range from 8 to 40. Higher IPOE scores indicate greater perceived school organizational effectiveness than lower IPOE scores. A copy of the IPOE used in this study is included in Appendix A.

Data Analyses

A variety of data analyses were completed in this study:

1. Summary descriptive statistics for pertinent demographic and sample variables and for each independent and dependent variable.

2. Large-scale factor analyses to examine/establish the construct validity and structure of the PLEI and the TSOEA instruments and to confirm the previously documented structure of the RCI (Chauvin, 1992).

3. Cronbach Alpha reliability analyses to examine the internal consistency reliability of identified subscales of the PLEI and the TSOEA as well as the RCI and the IPOE using both school means and teachers as the units of analysis.

4. Stability (reliability) analyses to examine the test-retest reliabilities of the PLEI and the TSOEA instruments using teachers as the units of analysis.

5. A series of bivariate correlations (Pearson product moment procedures) to examine relationships among selected variables in the study using schools as the units of analysis.

6. A series of multivariate analyses (multiple regressions, partial correlations and canonical correlations) to examine relationships among study variables using schools as the units of analysis.

7. A series of bivariate correlations within each school between selected independent variables and the IPOE using teachers as the units of analysis.

8. A variety of supplemental analyses to examine the independence of established bivariate relationships from school SES and school Size using schools as the units of analysis.

Descriptive Statistics

Summary descriptive statistics were completed for pertinent demographic variables as well as for all dependent and independent variables in the study. Means, standard deviations, and ranges of scores for each factored subscale of the independent measures were aggregated and reported for the total sample and for each school level. Means and standard deviations were computed for the various dependent measures which included standardized student achievement NCE scores, SES levels (percentages of students on free/reduced lunch), and student SADA (percentage of average daily attendance) for the total sample of schools. Individual-level descriptive statistics were also reported where appropriate.

Factor Analyses

A series of factor analysis procedures was completed for each of three instruments (PLEI, TSOEA, RCI) used in this study before proceeding with analyses pertinent to the major research questions. Two of the instruments, the PLEI and the TSOEA were initially developed for use in this study. The PLEI was used to measure teacher perceptions of characteristics of the school professional learning environment. The TSOEA was used to measure teacher perceptions of self and organizational efficacy as the construct relates to motivation toward accomplishment of specific types of organizational and personal goals. Initial, exploratory, principal components factor analysis procedures were used as one means by which to empirically establish/verify dimensions of each of the instruments. The third instrument used, the RCI, was a modified version (Chauvin, 1992) of the original RCI instrument developed by Hennigar (1979) and was based on the conceptualization of receptivity to change as a two-dimensional construct, rather than a unidimensional one as reported in studies by Hennigar (1979) and Crisafulli (1982). Results of Chauvin's (1992) study suggested the need to continue empirical investigations of the construct validity of the RCI as a two factor instrument which measures receptivity to Superficial/Behavioral Change and Cultural/Normative Change.

For each measure, a series of principal components factor analysis procedures were completed to derive first, an unconstrained solution, followed by a series subsequent analyses using oblique and orthogonal rotations (Promax; Varimax, SAS Institute, 1985), extracting factors iteratively, and terminating when factor eigen values

of 1.0 were obtained. Factor/factor and item/factor intercorrelations were also completed. Teachers were used as the units of analyses for these factor analytic procedures. Data were examined prior to the analyses for missing or duplicate teacher responses which were substituted with item grand means in order to maximize the number of usable responses for the analyses.

For one-factor solutions, factor pattern matrices were used to examine factor loadings. For solutions beyond one-factor, rotated factor pattern/structure matrices were used to examine factor loadings for orthogonal solutions and factor structure matrices (correlations) were used to examine factor loadings for oblique solutions.

A set of considerations that were regarded as appropriate, given the exploratory nature of the study (which involved instrument development) was used to guide the factor analyses conducted for the PLEI and the TSOEA. These considerations involved; 1) validity concerns for both face and content validity of items and subscales relative to conceptual bases of constructs measured, and 2) reliability concerns relative to inclusion of appropriate numbers of items for subscales.

The following set of initial decision rules for retention of items on factors for all measures was used in examining the results of factor analyses and in determining which solution represented the best statistical and conceptual interpretation of the data. An item was retained on the factor of highest loading giving consideration to the following criteria in order of occurrence: 1) the magnitude of the item loading on a factor was greater than or equal to .33 (at least 10% of the variance in the item was in common with the factor on which it loaded); 2) the item loaded primarily on one factor;

or 3) the item loaded on multiple factors, but the difference between the percentages of item/factor variance explained for the two highest loadings was at least 15%. Items meeting these criteria were included on instrument subscale aggregations used for subsequent analyses. However, it was subsequently decided to retain a few selected items with multiple factor loadings giving consideration to the specific conceptual fit of the item and identified instrument dimension and to the concern for enhancing instrument subscale reliability.

Factor analyses of the PLEI and the TSOEA instruments were exploratory in nature since the instruments were specifically developed for use in this study. Thus, factored subscales for each measure were initially constructed based on factor loadings for the particular solution that represented the best conceptual and statistical definition of constructs that each instrument was designed to measure. The factor analysis of the RCI was completed to provide additional evidence of Chauvin's (1992) findings that teacher receptivity to change is most correctly operationalized as a two-dimensional, rather than a one-dimensional construct.

Reliability Statistics

Cronbach Alpha (1957) reliability procedure was used to examine internal consistency reliability of the PLEI, the TSOEA ,the RCI (modified version) and the IPOE. Factored subscale scores for the PLEI, TSOEA and the RCI and total instrument scores for the IPOE were used in the reliability analyses. Alpha coefficients were computed using both teachers ($n=1041$) and teacher school means ($n=40$) as units of analysis.

Test-retest reliability (stability) coefficients (Pearson product moment correlations) were also computed for the separate sample of 52 teachers participating in the pre-post administration of the questionnaire for each of the PLEI and TSOEA subscales.

Correlation Analyses

A series of bivariate and multivariate correlation analyses were completed to examine the relationships between the various independent (PLEI, TSOEA, and RCI factored subscales) and dependent variables (IPOE, SAT scores and SADA) in response to primary and supplemental research questions using teacher school means as the units of analysis. For these analyses, factor analyzed versions of the various measures as reported in this study were used. The analyses included: 1) Pearson product moment correlations among the independent variables and the various dependent variables; 2) a series of multiple regression analyses regressing each of the dependent variables (IPOE, SADA, SACHR, SACHM) on subscales of the independent variable measures (PLEI: OPLD, TAR, BEV, TA; TSOEA: TPSE, TPOE, CPE; RCI: SBC, CNC); 3) a series of partial correlations to examine the statistical independence of relationships established among selected study variables (PLEI subscales, TSOEA subscales and IPOE) from school size and SES; 4) a series of canonical correlation analyses using the independent variables of (PLEI, TSOEA, and RCI) as one variable set and the three school effectiveness variables (IPOE, SAT, and ADA) as a second variable set; and 5) a series of bivariate correlations between selected independent and dependent variables

within each of 40 schools in the sample using individual teachers as the units of analysis.

It is important to note that units of analysis and sample sizes for the various research and supplemental analyses varied from one analysis to the next because of instances of incomplete data and factors relating to the nature of the research question for which the analysis was completed. For example, factor analyses and correlations within schools were completed using teachers as the units of analysis, and analyses completed relative to independent and dependent variable relationships were typically completed using teacher school means as the units of analysis. School means reliability analyses were completed for schools with at least 10 teacher respondents. Analyses examining relationships between independent (PLEI, TSOEA, and RCI) and dependent (IPOE, SACH, and SADA) variables were completed only for those schools in which 50% of the teachers sampled responded to the questionnaire. Analyses using student achievement data did not include secondary schools (Grades 9-12) because the SAT was not administered in the participating district beyond Grade 8.

Summary

Chapter 3 presents a discussion of the research design, instrumentation, data collection and data analyses procedures used to address primary and supplemental research questions in the study.

Chapter 4 includes a summary of descriptive statistics for sample demographic and study variables and results of data analyses conducted to address each of the primary and supplemental research questions initially posed in the study.

CHAPTER 4: SUMMARY OF RESULTS

This chapter describes the results of the study. Results are presented as follows: 1) descriptive statistics for the sample; 2) descriptive statistics for the various independent and dependent variables; 3) summary of reliability analyses; 4) summary of intercorrelations among instrument subscales; 5) analyses pertinent to major research questions; and 6) supplemental analyses. Independent variables were as follows: 1) factored subscales of the PLEI [(Opportunities for Professional Learning and Development (OPLD), Teacher-Administrator Relations (TAR), Beliefs, Expectations and Values (BEV), and Teacher Autonomy (TA)]; 2) factored subscales of the TSOEA: [Teacher Perceptions of Self Efficacy (TPSE), Teacher Perceptions of Organizational Efficacy (TPOE), and Collective Perceptions of Efficacy (CPE)]; 3) subscales of the RCI [Superficial Behavioral Change (SBC), and Cultural Normative Change (CNC)]. The dependent variables included a measure of school organizational effectiveness (IPOE) and indices of school productivity (standardized achievement test scores) and school holding power (student and teacher average daily attendance).

Summary of Descriptive Statistics for Survey Sample

The sample for the study was drawn from schools in six geographical regions in a large, predominantly urban/suburban school district in the southeast region of the United States. Ninety schools considered representative of district demographic characteristics (e.g., size, level, urban/suburban, etc.) were selected by district administrative personnel as potential participants in the study. District policy mandated

that individual school participation in the study must be voluntary. Fifty-three schools volunteered to participate in the study. Of the fifty-three participating schools, usable data (at least 50% of the total number of teachers sampled) for school level analyses were received from 40 (75%) of the schools. Table C.1 (Appendix C) provides a summary of personal and professional characteristics for the total sample of teachers (n=1041). Table C.2 provides a summary of school demographic characteristics for participating schools (n=53). Although grade level distributions for elementary and middle levels in various district regions were somewhat varied, classifications were considered representative of typical, district-wide school level categorization. For the total sample of responding schools, twenty-seven (51%) were elementary schools (grades Preschool/Kindergarten-5), sixteen (30%) were middle schools (grades 6-8), and ten (19%) were secondary schools (grades 9-12).

A separate sample of 52 teachers in two middle schools in another southeastern state was used to examine test/retest reliability characteristics of instruments specifically developed for the study (PLEI, TSOEA).

School Characteristics

Socioeconomic Status

The socioeconomic status (SES) for each sample school was obtained from individual school profiles provided by the school district for the 1992-93 school year. SES for a school was defined as the percentage of the total number of students participating in free or reduced cost lunch programs. Using these figures as an estimate of SES, it was inferred that the higher the percentage of students participating in these

programs, the lower the SES level of the school. The mean SES for the total school sample (n=53) was 58.34%. Percentages ranged from a low of 8% to a high of 98%. Mean SES percentages by school level were 64.23% (elementary), 62.69% (middle), and 15.4% (secondary).

Student Attendance

The percentage of student average daily attendance (SADA) for each school was obtained from individual school profiles. Percentages of SADA were reported for the 1991-92 school year. The mean SADA for the total sample of schools was 94.01%. Percentages of SADA ranged from a low of 89% to a high of 96%. Percentages of SADA by school level were 94.69% (elementary), 94.25% (middle), and 92.2% (secondary).

School Size

School size was defined as the total number of students enrolled at each school. Student membership numbers reported on school profiles for the 1992-93 school year were used as an index of school size. The mean school size for the total sample of schools was 1374 students. School size indices ranged from a low of 511 to a high of 3912 students. Mean school sizes by school level were 845 students (elementary), 1273 students (middle), and 3049 students (secondary).

Student Achievement

Student achievement scores used were reported on district individual school profiles for the Reading Comprehension and Mathematics Computation subtests of the Stanford Achievement Test (SAT) (eighth edition). Grade level median percentile

scores were included on each school profile for elementary and middle schools. School indices used were obtained by converting each median percentile grade level score to a normal curve equivalent (NCE) score and computing a separate school mean composite NCE score (the average of NCE grade level scores) for each of the two subtests of the SAT. Since NCE scores are standardized to assume properties of equal-interval scales, these scales were selected for use in subsequent analyses to facilitate comparisons of student achievement indices across schools with varying grade level compositions.

The mean NCE score for the total sample of elementary and middle schools (n=38) was 50.76 for the SAT Math Computation subtest and 42.58 for the SAT Reading Comprehension subtest. NCE school composite scores for the SAT reading subtest ranged from a low of 30 to a high of 60 and for the math subtest, the range was from a low of 35 to a high of 66.

Survey Response Rates

Table C.2 provides a summary of schools electing to participate in the study. A total of 1041 usable questionnaires was returned from the sample of 53 schools; 27 elementary schools (51%), 16 middle schools (30%), and 10 high schools (19%). The complete set of teacher data was used in the various factor analyses completed. A teacher participation criterion response rate of at least 50% of those surveyed within each of the 53 participating schools was used to construct the sample for school-level data analyses. This criterion resulted in a subsequent sample of 40 schools representing 75.5% of the original 53 participating schools that was used in school means analyses.

This sample of 40 schools included 22 elementary, 14 middle, and three secondary schools. Due to the relatively large teacher populations (ranging from 84-184 teachers) in secondary schools, teacher response rates for these schools did not typically meet the 50% rule established to select schools for various school-level analyses. However, individual teacher responses from these schools were used in factor analyses and in internal consistency reliability analyses.

Characteristics of Nonresponding Schools

Of the original 90 schools, selected as representative of district characteristics by district personnel, 53 schools volunteered to participate in the study. Analyses of demographic characteristics of student attendance, school size, SES, and student achievement by school level for the original school sample (n=90) and for the volunteer school sample (n=53) were completed to assess sample representativeness. Comparisons of the various school mean demographic characteristics by school level and for the total sample for each group of the originally identified schools (n=90) and the volunteer school sample (n=53) revealed only slight differences in SES (for middle schools) and suggest reasonable representativeness of the volunteer schools. Characteristics of participating schools are reported in Table C.2. A descriptive profile of the sample of non-responding schools (n=37) is included in Table C.3.

Participant Sample Characteristics

Descriptive statistical results for the total teacher sample can be found in Table C.1 in Appendix C. This table depicts a profile of personal and professional characteristics of the sample of teachers (n=1041) who responded to the survey.

Female teachers comprised the majority (73.3%) of the total sample. Black and Hispanic minorities constituted 40.4% of the sample (20.7% and 19.7%, respectively), with the white population comprising 55.3% of teacher respondents. Ages of participants generally ranged from 30-59 years, with the range of 40-49 (40.3%) being most typical. Years of experience in teaching typically ranged from 6-14 years (40.1%), however, a rather large percentage of beginning teachers with three or fewer years experience (24.4%) was also noted. Interestingly, most teachers (63%) had worked with their current principal for a period of three or fewer years. The majority of the teacher sample (76.7%) held either Bachelor (38.6%) or Master (38.5%) degrees.

Respondents were somewhat evenly distributed across school levels with elementary teachers comprising 36.6% of the sample respondents, followed by middle and secondary teachers comprising 28.4% and 28.3% of the sample respondents, respectively. The typical respondent (69.4%) was teaching in a regular education situation. Special education teachers comprised 10.5% of the total sample of respondents. The typical content area in which respondents were teaching was basic skills/elementary (27.8%) followed by English/language arts (11.8%), mathematics (8.8%), and science (8.3%).

Summary of Descriptive Statistics for Instrument Items

The following sections include summaries of descriptive statistics for each instrument and index used to operationalize the various independent and dependent variables in the study. Descriptive tables are located in Appendix D and include only

the number of each item for each instrument (PLEI, TSOEA, RCI, and IPOE). These item numbers can be cross-referenced for item content with each original instrument included in the instrument set in Appendix A.

The Professional Learning Environment Inventory (PLEI)

Descriptive statistics for each item of the original 42-item PLEI instrument used in the study were computed for the total sample of teachers (n=1041). Table D.1 reports means and standard deviations for each of the PLEI items. All items on the PLEI were scored using a four-point frequency scale: 1=Factor/Event/Condition Does Not Occur/Exist to 5=Factor/Event/Condition Almost Always Occurs/Exists. Thus, a higher PLEI item mean indicates teachers' perceptions of a more frequently occurring/existing event, factor or condition in the school. Item means for the total sample ranged from a low of 1.90 for PLEI item 15 (Opportunities exist for cooperative exchanges with other schools) to a high of 3.36 for PLEI item 34 (What is taught is determined by district guidelines). The standard deviations for the PLEI items ranged from a low of .72 (item 34) (What is taught is determined by district guidelines) to a high of 1.08 (item 22) (Formal opportunities, specific time set aside, exist to work/plan collaboratively with other teachers).

The Teacher Self and Organizational Efficacy Assessment (TSOEA)

Descriptive statistics for each item of the original 24-item TSOEA instrument used in the study were computed for the total sample of teachers. Table D.2 reports means and standard deviations for each of the TSOEA items. All items on the TSOEA were scored using a five-point Likert scale, ranging from: 1=Little /No

Effort/Persistence to 5=Large Amount of Effort/Persistence. For the first two subscales, Teacher Perceptions of Self Efficacy (TPSE) and Teacher Perceptions of Organizational Efficacy (TPOE), a higher item mean score indicates a greater amount of perceived self or organizational efficacy for each of four goals as specified in the item statement. For the third subscale of Collective Perceptions of Efficacy (CPE) a higher item mean score indicates decreasing efforts toward goal accomplishment and thus indicates a lesser degree of perceived self or organizational efficacy for each of the goals specified in the

item statement. Items for this subscale were reverse coded in the analyses to facilitate comparisons among subscales.

Item means for the total sample ranged from a low of 2.29 for TSOEA item 17 (To what extent would failure to accomplish the goal of enhancing the learning of students result in decreasing effort to accomplish future goals?) (Note: This question directs the respondent to select a response based on his/her own personal efforts.) to a high of 4.72 for TSOEA item 1 (How much energy/effort is put forth in your school to accomplish the goal of enhancing the learning of students?) (Note: This question directs the respondent to select a response based on his/her own personal effort.). The standard deviations for the TSOEA items ranged from a low of .57 for item 1 to a high of 1.34 for item 17.

The Modified Receptivity to Change Inventory (RCI)

Descriptive statistics for each item of the modified 18-item RCI instrument used in the study were computed for the total sample of teachers. Table D.3 reports means

and standard deviations for each of the RCI items. All items on the RCI were scored using a five-point Likert scale ranging from: 1= "I would not support the suggestion;" to 5= "I would support the suggestion." A higher item mean indicates a greater degree of agreement with/support for the school/district change suggested in the item and thus reflects greater, positive receptivity to change. Item means for the total sample ranged from a low of 1.50 for RCI item 7 (Remove walls in schools to develop an open classroom educational environment) to a high of 4.30 for RCI item 6 (Develop a positive action committee to curb school dropouts). The standard deviations for the items ranged from a low of 1.01 for RCI items 7 (stated above) and 15 (Allow parents to have the final decision in the promotion/retention of their children in grades K-12) to a high of 1.47 for RCI item 1 (Lengthen the school year to 200 student attendance days).

The Index of Perceived Organizational Effectiveness (IPOE)

Descriptive statistics for each of the eight items of the IPOE instrument used in the study were computed for the total sample of teachers. Table D.4 reports means, standard deviations, and mean percentages of the maximum possible scores for each of the IPOE items. All items on the IPOE were scored using a five-point, forced choice scale. The content of each of the five scale points varies from one item to the next. Each response set was designed to reflect degrees of organizational effectiveness (relative to the content of the item) ranging from: 1=Ineffective; to 5=Highly Effective. A higher item mean indicates a greater degree of perceived organizational effectiveness. IPOE item means for the total sample ranged from a low of 2.98 for

item 6 (When changes are made in methods, routines, or equipment, how quickly do the people in your school accept and adjust to the changes?); to a high of 3.94 for IPOE item 2 (How good is the quality of the products or services produced by the people you know in your school?). Standard deviations for the IPOE items ranged from a low of .76 for IPOE item 2 (stated above) to a high of 1.06 for IPOE item 5 (How informed are the people in your school about innovations that could affect the way they work?).

Summary of Results of Factor Analyses

A series of factor analysis procedures was completed for the PLEI, TSOEA, and the RCI before proceeding with reliability analyses and analyses pertinent to the major research questions in this study. Results of these analyses for each instrument are reported in the sections that follow.

PLEI Factor Analyses

In an attempt to explore conceptual dimensions of the professional learning environment as measured by the PLEI, a series of principal components factor analysis procedures using both oblique (Promax) and orthogonal (Varimax) rotation techniques (SAS Institute, 1985), extracting from one to six factors, was conducted using the total sample of teacher data (n=1041). Examination and comparison of results of these analyses with initial, conceptual definitions of dimensions of the school professional learning environment were completed to determine the best conceptual and statistical alignment of items with the various subscales. Item grand means were substituted for

missing item data for a small number of cases (less than .05%) in order to maximize the number of usable cases included in the factor analyses.

Results of analyses were interpreted in view of the independence of factor structure, the best conceptual fit of the items loading on various subscales/dimensions of the PLEI, and examination of eigen values and percentages of variance explained by each of the solutions as well as by each factor within each of the various solutions. Review of analyses relative to the various factor solutions was conducted first, by examining the results for a one factor solution, and subsequently by examining the results for various oblique and orthogonal two- through six- factor solutions. Results of this review revealed that the four-factor, orthogonal solution represented the best statistical and conceptual analysis of the PLEI data.

Table 1 summarizes the results of the one-factor, principal components solution for the PLEI data. Item loadings (item/scale correlations) ranged from a low of .37 to a high of .78, with all 42 of the PLEI items loading on a single factor with 38 item loadings at or exceeding .50. The one-factor solution results explained approximately 42% of the total variance in the data. Subsequent oblique and orthogonal solutions were computed because of the initial conceptualization of separate PLEI constructs and in an attempt to arrive at a solution which meaningfully explained a larger percentage of variation in the data.

Both oblique and orthogonal two- through six- factor solutions for the PLEI data were completed and reviewed for independence of factor loadings, variance explained by each factor and for the total solution, and conceptual fit with dimensions/subscales.

Table 1

Summary of Factor Pattern Coefficients (1 Factor Solution) for the Professional Learning Environment Inventory (PLEI) (n=1041)

PLEI Item	1 Factor[a]
1	.67
2	.73
3	.67
4	.55
5	.56
6	.67
7	.56
8	.57
9	.67
10	.72
11	.75
12	.69
13	.77
14	.67
15	.64
16	.68
17	.47
18	.68
19	.63
20	.61
21	.59
22	.62
23	.70
24	.62
25	.64
26	.71
27	.78
28	.58
29	.68
30	.64
31	.37
32	.61
33	.70
34	.45
35	.62

(table continues)

PLEI Item	1 Factor[a]
36	.74
37	.78
38	.70
39	.75
40	.65
41	.47
42	.61
Variance Explained[b] = 41.99	

[a] Principal components solution
[b] Expressed as a percentage of explained variance in the data by the solution

An initial set of decision making rules was used for retaining items and slight modifications in these rules were subsequently made to retain final items as described in Chapter three. Results indicated that the four-factor, orthogonal solution represented the best conceptual and statistical fit with the original underlying conceptualizations of elements of the professional learning environment in schools.

Table 2 is a summary of rotated factor structure coefficients (correlations) for the four- factor oblique solution. Item loadings ranged from a low of .47 to a high of .83. Further examination of the factor loadings for this solution indicated several instances of item cross loadings on one or more factors. Twenty-seven (64%) of item loadings did not meet the original criteria established for item retention on a particular factor. In view of these initial results and considering the intercorrelations among items and the interpretability of constructs, it appeared that this solution fell somewhat short of explaining the nature of independent factors that were originally posited to exist within the conceptual framework for understanding the professional learning environment in schools. Thus, this solution was not retained and further review of orthogonal solutions was deemed necessary.

Review of orthogonal, rotated factor pattern/structure coefficients (correlations) for the two- through four-factor solutions for the PLEI revealed that the four-factor, orthogonal solution represented the best conceptual and statistical fit with the original derivation of dimensions composing the professional learning environment construct. Table 3 summarizes these results. Twenty-seven of the PLEI items met the original criteria established for retaining items on factors. This number (n= 27), (in

Table 2
Summary of Rotated Factor Structure Coefficients for the Four-Factor Oblique Solution for the Professional Learning Environment Inventory (PLEI) (n=1041)

PLEI Item[a]	Communality Estimates[b]	Factor Coefficients I	II	III	IV
1	.53	.56	.68	.47	.17
2	.60	.58	.74	.51	.26
*3	.51	.65	.58	.44	.19
*4	.41	.61	.40	.39	.13
5	.45	.67	.38	.33	.22
6	.54	.61	.65	.37	.38
7	.37	.48	.56	.33	.31
*8	.38	.40	.58	.40	.39
9	.49	.59	.64	.45	.25
10	.56	.68	.65	.48	.27
11	.63	.65	.72	.54	.23
12	.52	.69	.53	.48	.37
13	.64	.73	.67	.50	.34
*14	.54	.71	.55	.43	.20
*15	.54	.73	.47	.42	.18
16	.53	.69	.52	.44	.42
17	.36	.40	.56	.24	.08
*18	.56	.56	.71	.40	.40
*19	.53	.42	.72	.40	.39
20	.43	.60	.55	.34	.30
21	.47	.63	.38	.41	.46
*22	.48	.69	.45	.42	.27
*23	.64	.76	.41	.56	.37
24	.53	.54	.40	.69	.23
*25	.67	.46	.41	.81	.30
*26	.65	.49	.59	.78	.29
27	.68	.60	.63	.76	.32
*28	.60	.41	.46	.48	.75
29	.56	.65	.42	.64	.41
30	.47	.56	.44	.63	.28
*31	.69	.22	.26	.27	.83
32	.41	.54	.44	.53	.42
33	.64	.38	.71	.67	.42
34	.32	.19	.48	.47	.25
35	.64	.37	.44	.79	.32

(table continues)

PLEI Item	Communality Estimates	Factor Coefficients I	II	III	IV
36	.64	.47	.76	.63	.38
37	.70	.50	.79	.67	.37
38	.58	.43	.64	.68	.45
*39	.66	.49	.76	.59	.53
40	.56	.51	.43	.74	.40
*41	.68	.27	.35	.38	.82
42	.46	.43	.46	.61	.50
Variance Explained[a]	30.8%	29.3%	31.6%		28.6%

* Item loading meets original criteria established for item retention on factor

[a] Expressed as a percentage of explained variance in the data by each factor in the four-factor solution

[b] Sum of squared loadings for the four factor solution

Table 3
Summary of Rotated Factor Pattern Coefficients for the Four-Factor Orthogonal Solution for the Professional Learning Environment Inventory (PLEI) (n=1041)

PLEI Item[a]	Communality Estimates[b]	Factor Coefficients I	II	III	IV
1	.53	.39	.55**	.26	-.01
2	.60	.40	.60**	.27	.06
*3	.51	.54	.41	.22	.02
4	.41	.55**	.20	.22	-.02
5	.45	.63**	.17	.12	.09
*6	.37	.47	.50	.10	.24
*7	.54	.35	.44	.11	.19
8	.38	.22	.47**	.19	.27
*9	.49	.44	.49	.22	.08
*10	.56	.54	.47	.23	.09
*11	.63	.47	.55	.31	.02
12	.52	.57**	.30	.25	.21
*13	.64	.58	.47	.23	.15
14	.54	.62**	.35	.20	.03
15	.54	.66**	.25	.20	.02
16	.53	.58**	.29	.19	.28
17	.36	.28	.52**	.06	-.06
18	.56	.38	.58**	.13	.25
19	.53	.21	.63**	.16	.24
*20	.43	.49	.40	.10	.17
21	.47	.54**	.13	.19	.35
22	.48	.62**	.22	.21	.12
23	.64	.68**	.10	.36	.20
24	.53	.39	.13	.59**	.05
25	.67	.25	.14	.76**	.10
26	.65	.26	.36	.67**	.08
27	.68	.38	.38	.62**	.10
28	.60	.22	.24	.27	.65**
29	.56	.52	.12	.47	.24
*30	.47	.41	.20	.50	.11
31	.69	.08	.09	.09	.82**
*32	.41	.40	.21	.36	.28
*33	.64	.11	.55	.51	.24
*34	.32	-.01	.40	.39	.13
35	.64	.14	.20	.75**	.14

(table continues)

PLEI Item	Communality Estimate	Factor Coefficients I	II	III	IV
36	.64	.22	.61**	.43	.18
37	.70	.23	.64**	.47	.16
*38	.58	.19	.44	.52	.27
39	.66	.24	.60**	.35	.36
40	.56	.33	.15	.62**	.23
41	.68	.10	.16	.19	.78**
*42	.46	.24	.23	.47	.36
Variance Explained[c]		17.5%	15.6%	13.9%	7.3%
Variance Explained[d] (Four-factor solution)	54.4%				

* Item loadings do not meet original criteria established for item retention on factor
**Item retained on factor of highest loading
[a] PLEI item number on original instrument
[b] Sum of squared loadings for this four factor solution
[c] Expressed as a percentage of explained variance in the data by each factor in the four-factor solution
[d] Expressed as a percentage of explained variance in the data by the four-factor orthogonal solution

comparison with the 15 items meeting the criteria for the four-factor oblique solution) served to simplify the PLEI subscale constructs into a meaningful framework relative to the initial conceptions of characteristics of the professional learning environment in schools. This four-factor orthogonal solution meaningfully accounted for 54% of the variation in the PLEI data.

Factor I, Opportunities for Professional Learning and Development (OPLD), consisted of nine items and accounted for 17.5% of the variance in the data for the four-factor solution. Teacher/Administrator Relations (TAR), Factor II, also consisted of nine items and accounted for 15.6% of the variance in the solution. Factor III, Beliefs/Values/Expectations (BEV), consisting of six items, accounted for 13.9% of the total item variance in the solution and Factor IV, Teacher Autonomy (TA), consisting of three items, accounted for 7.3% of the total item variance in the solution. Thus, a total of 27 of the original 42 PLEI items were retained to operationalize the resulting PLEI subscale structure. This factored version of the PLEI was used in subsequent analyses to explore answer to the research questions posed in the study. Table B.1 (Appendix B) presents an item location index for the PLEI factored subscales which can be cross-referenced with the PLEI original instrument items (Appendix A) to examine the nature of the various subscale constructs.

Intercorrelations among the PLEI subscales were strong in magnitude and positive in direction and were as follows: BEV/TA, .35 ($p<.05$); TAR/TA, .36 ($p<.05$); OPLD/TA, .50 ($p<.01$); BEV/TAR, .71 ($p<.01$); ; TAR/OPLD, .74 ($p<.01$), BEV/OPLD, .76 ($p<.01$) (Table 21).

TSOEA Factor Analyses

To explore conceptual dimensions of the teacher self and organizational efficacy constructs measured by the Teacher Self and Organizational Efficacy Assessment (TSOEA), a series of principal components factor analysis procedures using both oblique (Promax) and orthogonal (Varimax) rotation techniques (SAS Institute, 1985), extracting from one to five factors, was completed using the total sample of teacher data. Item grand means were substituted for missing item data for a small number of cases in order to maximize the number of usable cases included in the factor analyses. Examination and comparison of results of these analyses with initial, conceptual definitions of dimensions of self and organizational (collective) efficacy was completed to determine the best conceptual and statistical alignment of items with the various subscales. Results of analyses were interpreted in view of the independence of factor structure, the best conceptual fit of the items loading on various subscales/dimensions of the TSOEA, and examination of eigen values and percentages of variance explained by each of the solutions as well as by each factor within each of the various solutions.

Reviews of analyses relative to the various factor solutions were completed by first examining a one factor solution, and subsequently by examining various oblique and orthogonal two- through five- factor solutions. Results of these reviews revealed that the three-factor, orthogonal solution represented the best statistical and conceptual interpretation of the data.

Table 4 summarizes the results of the one-factor, principal components solution for the TSOEA data. Item loadings for this solution ranged from a low of .37 to a high of .77, with all 24 of the TSOEA items loading on a single factor and 18 loading at or exceeding .50. The one-factor solution results explained 35.9% of the variance in the data. Subsequent review of oblique and orthogonal solutions was conducted because of the initial conceptualization of separate self and organizational efficacy constructs, and because a number of loadings on the one-factor solution for several TSOEA items appeared lower than desired.

Results for both oblique and orthogonal two- through five- factor solutions for the TSOEA were reviewed for independence of factor loadings, variance explained by each factor and for total solution, and conceptual fit with dimensions/subscales. An initial set of decision making rules was used for retaining items and slight modifications in these rules were subsequently made to retain final items as described in Chapter three. Results indicated that the three-factor, orthogonal solution represented the best statistical fit of the data and, upon examination of the three factors relative to item content, a resulting re-conceptualization of the organizational efficacy construct emerged.

A review of the various oblique solutions for the TSOEA revealed results that were somewhat similar to those obtained for the PLEI (multiple cross loadings, etc.) and thus, the three-factor, orthogonal solution was examined and retained for construction of the TSOEA subscales. Item loadings for this solution ranged from a low of .36 to a high of .87. Further examination of the factor loadings for the three-factor

Table 4

Summary of Factor Pattern Coefficients (1 Factor Solution)
for the Teacher Self and Organizational Efficacy Assessment (TSOEA)
(n=1041)

TSOEA Item	1 Factor[b]
1	.37
2	.60
3	.59
4	.70
5	.60
6	.72
7	.58
8	.68
9	.53
10	.68
11	.68
12	.77
13	.66
14	.76
15	.63
16	.73
17[a]	.41
18	.45
19	.48
20	.51
21	.46
22	.51
23	.47
24	.50
Variance Explained[c] (1-Factor) = 35.9%	

[a] Items 17-24 have been reverse-scored
[b] Principal components solution
[c] Expressed as the percentage of explained variance in the data for the solution

orthogonal solution indicated that two items exhibited cross loadings of somewhat equal magnitude for two factors. Examination of the content of these two items suggested that each item might conceptually fit with either of the two subscales, and thus each was retained on both factors for subsequent analyses.

Table 5 summarizes the rotated factor pattern/structure coefficients (correlations) for the three-factor, orthogonal solution for the TSOEA data. All 24 of the items met the original criteria established for item retention on a single factor. This solution explained 63.2% of the total variation in the TSOEA data. Factor I, Teacher Perceptions of Self Efficacy (TPSE), consisted of ten items (items 6 and 14 were retained on Factors I and II) and accounted for 21.4% of the variance in the data for the three-factor solution. Teacher Perceptions of Organizational Efficacy (TPOE), Factor II, consisted of eight items and accounted for 17.1% of the variance in the data for the solution. Factor III, Collective Perceptions of Efficacy (CPE) consisted of eight items and accounted for 24.7% of the variance in the data for this solution.

All 24 of the original TSOEA items exhibited meaningful loadings for the four-factor orthogonal solution and thus were retained on the factor of highest loading, with the exception of items six and fourteen, which were retained on both Factors I and II because of cross loadings of approximately equal magnitude. The resulting TSOEA subscale structure which was used in subsequent analyses to examine research questions, represented a revised conceptualization of the efficacy construct. For example, a third factor was identified which did not reflect separate individual and organizational perceptions, but defined perceptions of collective efficacy of members

Table 5

Summary of Rotated Factor Pattern Coefficients for a 3-Factor Orthogonal Solution for the TeacherSelf and Organizational Efficacy Assessment (TSOEA) (n=1041)

TSOEA Item	Communality Estimates[a]	Factor Coefficients I	II	III
1	.18	.36	.21	.01
2	.62	.14	.76	.13
3	.49	.65	.26	.00
4	.60	.48	.61	.04
5	.62	.78	.12	.03
6[b]	.61	.57	.54	.07
7	.46	.65	.19	.09
8	.64	.33	.73	.08
9	.37	.56	.22	.06
10	.70	.29	.78	.07
11	.60	.70	.32	.03
12	.71	.52	.66	.08
13	.69	.82	.16	.05
14[b]	.67	.57	.58	.09
15	.55	.71	.20	.10
16	.64	.43	.66	.11
17[c]	.71	.07	-.03	.84
18	.74	-.08	.21	.83
19	.75	.13	.00	.85
20	.75	.03	.17	.85
21	.80	.13	-.05	.88
22	.78	.03	.16	.87
23	.77	.14	-.04	.87
24	.74	.01	.19	.84
Variance Explained[d]		21.4%	17.1%	24.7%

Total Variance Explained (4-Factor)[e] = 63.2%

[a] Sum of squared loadings for this three factor solution
[b] Item was retained on two factors
[c] Items 17-24 have been reverse-scored
[d] Expressed as a percentage of variance explained in the data for each factor in the solution
[e] Expressed as a percentage of variance explained in the data for the solution

of the school organization in response to failure. Table B.2 (Appendix B) presents an item location index for the TSOEA factored subscales that can be cross-referenced with the TSOEA original instrument items (Appendix A) to examine the nature of subscale constructs.

Intercorrelations among the TSOEA subscales were as follows: TPSE/CPE, .50 ($p<.01$); TPOE/CPE, .50, ($p<.01$); TPSE/TPOE, .92 ($p<.01$) (Table 21).

RCI Factor Analyses

A series of principal component, factor analysis procedures were completed for the total sample of teachers ($n=1041$) for the modified RCI used in this study to examine Chauvin's (1992) finding that receptivity to change as measured by the RCI is a two-dimensional construct. Table 6 provides a summary of the one-factor solution for the RCI. Factor loadings ranged from a low of .32 to a high of .72. Five items did not demonstrate loadings meeting the minimum criteria for retention for the one factor solution. The percentage of total item variance explained by this solution was 21.8%. Results obtained for the two-factor orthogonal solution (Table 7), indicated that item loadings generally increased in magnitude. Factor pattern coefficients for this solution ranged from .42 to .72. In the instance of cross-loadings, items were retained on the factor of highest loading if the difference between loadings exceeded .20. Highest item loadings for ten items did not meet this original criterion, but were retained on the factor of highest loading after review of conceptual fit with the subscale construct. The percentage of variance explained in the data for this solution was 33.4%.

Table 6

Summary of Factor Pattern Coefficients (1 Factor Solution)
for the modified Receptivity to Change Inventory (RCI) (n=1041)

RCI Item[a]	Factor Coefficients[b]
1	.34
2	.43
3	.58
4	.44
5	.39
6	.51
7	.26
8	.64
9	.71
10	.72
11	.57
12	.47
13	.29
14	.06
15	.20
16	.28
17	.32
18	.57
Variance Explained[c] =21.8%	
Total Variance Explained (2-Factor) =33.4%	

[a] Items are a selected subset of original RCI
[b] Principal components solution
[c] Expressed as the percentage of explained variance in the data for the solution

Table 7

Summary of Rotated Factor Pattern Coefficients for a 2-Factor Orthogonal Solution for the modified Teacher Receptivity to Change Inventory (RCI) (n=1041)

RCI Item[a]	Communality Estimates[b]	Factor Coefficients I	II
1	.21	.45	.19
*2	.24	.44	.30
3	.40	.15	.63
*4	.25	.45	.32
5	.40	.63	.17
6	.41	-.03	.63
7	.19	.43	.11
8	.42	.27	.64
9	.57	.20	.76
10	.60	.20	.77
11	.41	.11	.64
12	.30	.05	.54
13	.19	.44	.13
14	.24	.43	-.13
15	.18	.42	.04
16	.26	.51	.09
17	.42	.64	.08
*18	.33	.37	.52
Variance Explained[c]		20.7%	12.7%

Total Variance Explained (2-Factor)[d] = 33.4%

* Highest loading did not meet original criteria

[a] Items are a selected subset of original RCI

[b] Sum of squared loadings for this two factor solution

[c] Expressed as the percentage of explained variance for each factor in the solution

[d] Expressed as the percentage of explained variance in the data for the solution

Results of these analysis provide some confirmatory evidence for Chauvin's (1992) finding that teacher receptivity to change in schools, as measured by the RCI, is a two-dimensional construct consisting of elements of superficial/behavioral change and cultural normative change. It should be recognized that the RCI instrument used in this study was a modified version of Chauvin's (1992) version of the RCI designed for use in schools. The modified version contains of the RCI used in this study contains only 18 items, eight for the subscale SBC and 10 for the subscale CNC.

An item location index for the subscales of the modified version of the RCI can be found in Appendix B (Table B.3). Item numbers can be cross-referenced with item content using the modified RCI instrument which is included in Appendix A.

The intercorrelation between the two RCI subscales of Superficial Behavioral Change (SBC) and Cultural Normative Change (CNC) was positive in direction, and moderately strong in magnitude ($r=.55$, $p<.01$) (Table 21).

Descriptive Statistical Summaries for Factored Instrument Subscales

Descriptive statistical summaries for the factored subscales of the PLEI, the TSOEA, the RCI and for the IPOE were completed for the sample of teachers with complete instrument data and for teachers by school level (elementary, middle, and secondary). Table 8 depicts summaries of descriptive statistics for all instrument subscales used in the study for teachers with complete instrument data in all schools. Tables 9-11 include descriptive summaries for teachers by school level (elementary, middle and secondary). Results are reported in the sections that follow.

Table 8

Summary of Instrument Subscale Descriptive Statistics for the PLEI, TSOEA, RCI, and IPOE for Teachers in all Schools (n=997)[a]

Instrument/Subscale	M	SD	M%Max[b]
Professional Learning Environment Inventory (PLEI)(27)[c]			
Subscales:			
OPLD (9)[d]	21.3	6.1	59.2
TAR (9)	25.7	5.9	71.4
BEV (6)	17.7	4.1	73.8
TA (3)	9.7	2.0	80.8
Teacher Self and Organizational Efficacy Assessment (TSOEA)(26)			
Subscales:			
TPSE (10)	40.1	6.9	80.2
TPOE (8)	29.7	6.6	74.3
CPE (8)	27.2	8.6	68.0
Receptivity to Change Inventory (RCI)(18)			
Subscales:			
SBC (8)	31.1	5.8	77.8
CNC (10)	19.6	6.1	39.2
Index of Perceived Oraganizational Effectiveness (IPOE) (8)	27.8	6.0	69.5

[a] Number of valid cases (listwise) with no missing values
[b] Subscale mean score expressed as a percentage of the maximum possible score
[c] Total number of items on instrument
[d] Number of items on subscale

Table 9

Summary of Instrument Subscale Descriptive Statistics for the PLEI, TSOEA, RCI, and IPOE for Teachers in Elementary Schools (n=406)[a]

Instrument/Subscale	M	SD	M%Max[b]
Professional Learning Environment Inventory (PLEI)(27)[c]			
Subscales:			
OPLD (9)[d]	22.7	6.1	52.2
TAR (9)	27.9	5.5	65.8
BEV (6)	19.0	4.0	67.0
TA (3)	9.6	2.2	83.3
Teacher Self and Organizational Efficacy Assessment (TSOEA)(26)			
Subscales:			
TPSE (10)	43.0	5.9	72.8
TPOE (8)	32.2	6.1	67.0
CPE (8)	28.2	9.5	64.5
Receptivity to Change Inventory (RCI)(18)			
Subscales:			
SBC (8)	32.0	5.1	74.3
CNC (10)	19.4	6.0	38.2
Index of Perceived Oraganizational Effectiveness (IPOE) (8)	29.0	6.0	66.0

[a] Number of valid cases (listwise) with no missing values
[b] Subscale mean score expressed as a percentage of the maximum possible score
[c] Total number of items on instrument
[d] Number of items on subscale

Table 10

Summary of Instrument Subscale Descriptive Statistics for the PLEI, TSOEA, RCI, and IPOE for Teachers in Middle/Jr. High Schools (n=302)[a]

Instrument/Subscale	M	SD
Professional Learning Environment Inventory (PLEI)(42)[b]		
Subscales:		
OPLD (9)[c]	21.9	6.0
TAR (9)	25.5	5.8
BEV (6)	17.3	4.0
TA (3)	9.6	2.0
Teacher Self and Organizational Efficacy Assessment (TSOEA)(24)		
Subscales:		
TPSE (10)	39.8	6.6
TPOE (8)	29.4	6.5
CPE (8)	27.4	8.5
Receptivity to Change Inventory (RCI)(18)		
Subscales:		
SBC (8)	31.4	6.3
CNC (10)	20.3	6.2
Index of Perceived Oraganizational Effectiveness (IPOE) (8)	27.6	6.0

[a] Number of valid cases (listwise) with no missing values
[b] Total number of items on instrument
[c] Number of items on subscale

Table 11

Summary of Instrument Subscale Descriptive Statistics for the PLEI, TSOEA, RCI, and IPOE for Teachers in Secondary Schools (n=289)[a]

Instrument/Subscale	M	SD
Professional Learning Environment Inventory (PLEI)(42)[b]		
Subscales:		
OPLD (9)[c]	18.8	5.5
TAR (9)	23.0	5.3
BEV (6)	16.1	3.7
TA (3)	10.0	1.8
Teacher Self and Organizational Efficacy Assessment (TSOEA)(24)		
Subscales:		
TPSE (10)	36.4	6.7
TPOE (8)	26.8	6.2
CPE (8)	25.8	7.1
Receptivity to Change Inventory (RCI)(18)		
Subscales:		
SBC (8)	29.7	6.1
CNC (10)	19.1	6.0
Index of Perceived Oraganizational Effectiveness (IPOE) (8)	26.4	5.6

[a] Number of valid cases (listwise) with no missing values
[b] Total number of items on instrument
[c] Number of items on subscale

PLEI Subscale Descriptive Statistical Summary

Descriptive statistics for the revised four-factor version of the PLEI used for subsequent analyses for the total teacher sample are included in Table 8. Tables 9, 10, and 11 present descriptive summaries for teachers by school level (elementary, middle and secondary). The tables also include results summaries for the subscale mean scores expressed as percentages of the maximum possible subscale score (M%Max). These percentages allow for a more direct comparison of PLEI subscale scores because the number of items comprising various subscales differs from one subscale to the next. PLEI subscale means for the total sample of teachers ranged from a low of 9.7 (Teacher Autonomy) (TA) to a high of 25.7 (Teacher/Administrator Relations) (TAR). Mean percentages of the maximum possible scores varied from 71.4% for the subscale TAR to 80.8% for the subscale TA. Standard deviations ranged from 2.0 for the subscale of TA to 6.1 for the subscale Opportunities for Professional Learning and Development (OPLD). Comparisons of PLEI subscale descriptive statistics across school levels (Tables 9, 10, and 11) revealed that mean percentages of the maximum possible scores for the PLEI subscales were fairly comparable for elementary (OPLD, 63.1%; TAR, 77.5%; BEV, 79.2%; TA, 80%) and middle (OPLD, 60.8; TAR, 70.8; BEV, 72.1; TA, 80) school teachers. These same PLEI scores for secondary teachers were somewhat lower than scores for elementary and middle school teachers: OPLD (52.2%), TAR (63.8%), BEV (67%) and were higher for the TA subscale (83.3%). Standard deviations for PLEI subscales were fairly comparable across elementary, middle and secondary school levels.

TSOEA Subscale Descriptive Statistical Summary

TSOEA subscale means for the total sample of teachers ranged from a low of 27.2 (CPE) to a high of 40.1 (TPSE). Standard deviations ranged from 6.6 for the subscale of TPOE to 8.6 for the subscale of CPE. Mean percentages of the maximum possible scores for TSOEA subscales ranged from a low of 68% Max for CPE to a high of 80.2% Max for TPSE (Table 8).

Comparisons of TSOEA subscale descriptive statistics across school levels (Tables 9, 10, and 11) revealed that mean percentages of the maximum possible scores for the PLEI subscales were fairly comparable for middle (TPSE, 79.6%; TPOE, 74%; CPE, 68.5%) and secondary (TPSE, 72.8%; TPOE, 67%; CPE, 64.5%) school teachers. Mean percentages of the maximum possible scores for PLEI subscales for elementary teachers were somewhat higher than scores for middle and secondary school teachers for all TSOEA subscales TPSE (86%), TPOE (80.5%), CPE (70.5%). Standard deviations for TSOEA subscales were fairly comparable across elementary, middle and secondary school levels.

RCI Subscale Descriptive Statistical Summary

Table 8 depicts summaries of descriptive statistics for all RCI subscales used in the study for teachers supplying complete instrument data in all schools. Tables 9, 10, and 11 include descriptive summaries for teachers by school level (elementary, middle and secondary). RCI subscale means for the total sample of teachers were 31.1 (Superficial/Behavioral Change) (SBC) and 19.6 (Cultural/Normative Change) (CNC). Mean percentages of the maximum possible scores were 77.8% Max for the SBC

subscale and 39.2% Max for the CNC subscale. Standard deviations for each of these subscales were 5.8 (SBC) and 6.1 (CNC). Comparisons of descriptive statistics for the RCI subscales for elementary, middle and secondary schools (Tables 9-11) revealed that mean percentages of the maximum possible scores and standard deviations for both RCI subscales were comparable for teachers in elementary and middle schools. Somewhat lower percentages of the maximum possible score for both RCI scales were noted for secondary schools than for elementary and middle schools.

IPOE Descriptive Statistical Summary

Table 8 depicts summaries of descriptive statistics for all instrument subscales used in the study for teachers with complete instrument data in all schools. The IPOE instrument mean score for the total sample of teachers was 27.8 with a standard deviation of 6.0. The mean percentage of the maximum possible score for the total sample for the IPOE was 69.5%. Mean percentage scores for school levels ranged from a low of 66% for secondary schools to a high of 72.5% for elementary schools (Tables 9-11).

Summary of Reliability Analyses

Cronbach Alpha internal consistency reliability coefficients were computed for all instrument (PLEI, TSOEA, RCI, and IPOE) subscales used in the study (Table 12) along with summaries of alpha (if item deleted) coefficients for each item retained on the PLEI and TSOEA factored subscales (Table 13). The sample for these analyses was drawn from the total sample to include only data from 40 schools characterized by a response return rate of at least 50% of the teachers surveyed. In addition to these

analyses, test-retest reliability (stability) coefficients were computed for the PLEI and TSOEA subscales for a separate sample of 54 teachers to whom these two instruments were administered over a two-week time period. The sections that follow summarize the results of the various reliability analyses completed. The reliability coefficients reported for the PLEI, TSOEA, and the RCI are based upon item/scale aggregations resulting from the factor analyses completed on each instrument as part of this study.

PLEI Reliability Analyses

Internal Consistency Reliability Analyses

Cronbach Alpha internal consistency reliability coefficients were computed for each of the four PLEI subscales for the sample of teachers (n=667) in 40 schools. For this sample of teachers, Alpha coefficients for each of the PLEI subscales were as follows: Opportunities for Professional Learning and Development (OPLD) (r=.88); Teacher/Administrator Relations (TAR) (r=.89); Beliefs/Expectations/Values (BEV) (r=.88); and Teacher Autonomy (TA) (r=.79). Table 12 depicts a summary of Alpha reliability coefficients for all instrument subscales, along with the number of items for each subscale, used in the study. Lower Alpha coefficients were generally obtained for subscales with a small number of items. Reviews of Alpha (if item deleted) coefficients (Table 13) revealed a general consistency of coefficients for PLEI subscales, providing additional support for retention of the various items on each of the factored subscales.

Test-Retest (Stability) Analyses

Stability coefficients were computed between the PLEI instrument Pre and Post test administrations which occurred over a two-week time period for a sample of 48

Table 12

Summary of Standardized Alpha Reliability Coefficients for all Subscales of the PLEI, TSOEA, RCI, and IPOE for Teachers (n= 664)

Instrument/Subscale	Alpha Coefficient
PLEI (27)[a]	
OPLD (9)[b]	.88
TAR (9)	.89
BEV (6)	.88
TA (3)	.79
TSOEA (24)	
TPSE (10)	
TPOE (8)	.89
CPE (8)	.92
	.95
RCI (18)	
SBC (8)	.79
CNC (10)	.65
IPOE (8)	.90

[a] Total number of items for the factor-analyzed version of the instrument in this study

[b] Number of items on the subscale

Table 13

Summary of Intercorrelations and Alpha Coefficients for Items/Subscales of the PLEI and TSOEA

Subscale Items	Item/Subscale Correlation[a]	Alpha if Item Deleted[b]
PLEI/OPLD		
4[c]	.64	.87
5	.67	.87
12	.74	.86
14	.74	.86
15	.72	.87
16	.72	.87
21	.68	.87
22	.74	.86
23	.77	.86
PLEI/TAR		
1	.74	.88
2	.78	.87
8	.58	.89
17	.62	.89
18	.71	.88
19	.71	.88
36	.81	.87
37	.84	.87
39	.79	.87
PLEI/BEV		
24	.76	.88
25	.85	.85
26	.83	.85
27	.83	.86
35	.77	.86
40	.74	.87
PLEI/TA		
28	.82	.77
31	.85	.69
41	.84	.69

(table continues)

Subscale Items	Item/Subscale Correlation[a]	Alpha if Item Deleted[b]
TSOEA/TPSE		
1	.44	.89
3	.70	.87
5	.77	.87
6*	.77	.88
7	.66	.89
9	.61	.88
11	.77	.87
13	.82	.88
14*	.76	.88
15	.72	.87
TSOEA/TPOE		
2	.71	.92
4*	.78	.91
6	.80	.91
8	.80	.91
10	.80	.91
12	.85	.91
14*	.83	.90
16	.81	.91
TSOEA/CPE		
17	.85	.94
18	.84	.92
19	.86	.94
20	.87	.94
21	.88	.94
22	.88	.94
23	.87	.94
24	.86	.94

[a] Pearson product moment correlation coefficient computed between item and subscale composite ($p<.01$)

[b] Alpha coefficient computed for subscale with item deleted

[c] Item number appearing on original instrument

* Item retained on two subscales

teacher volunteers in two schools. Pearson product moment correlation coefficients were computed between scores for each of the PLEI subscales for pre and post test administrations using teachers as the units of analyses. Stability coefficients for the PLEI subscales for the sample of 48 teachers were as follows: OPLD ($r=.48$; $p<.01$); TAR ($r=.69$; $p<.01$); BEV ($r=.67$; $p<.01$); and TA ($r=.60$; $p<.01$). Because of concerns about the rather low stability coefficients for the PLEI OPLD subscale, stability coefficients were subsequently computed for each group of teachers within each of the two schools. These coefficients were .30 ($p>.05$) and .61 ($p<.01$), respectively.

TSOEA Reliability Analyses

Internal Consistency Reliability Analyses

Cronbach Alpha internal consistency reliability coefficients were computed for each of the three TSOEA subscales for the sample of teachers ($n=667$) in 40 schools. For this sample of teachers, Alpha coefficients for each of the TSOEA subscales were as follows: Teacher Perceptions of Self Efficacy (TPSE) ($r=.89$); Teacher Perceptions of Organizational Efficacy (TPOE) ($r=.92$); and Collective Perceptions of Efficacy (CPE) ($r=.95$). Table 12 depicts a summary of Alpha reliability coefficients for all instrument subscales, along with the number of items for each subscale, used in the study. Reviews of Alpha (if item deleted) coefficients (Table 13) revealed a general consistency of coefficients for TSOEA subscales and provides additional support for retention of the various items on each of the factored subscales.

Test-Retest (Stability) Analyses

Stability coefficients were computed between the TSOEA instrument Pre and Post test administrations over a two-week time period for the sample of 48 teacher volunteers in two schools. Pearson product-moment correlation coefficients were computed between scores for each of the TSOEA subscales from pre and post test administrations. Stability coefficients for the TSOEA subscales were as follows: TPSE ($r=.80$; $p<.01$); TPOE ($r=.80$; $p<.01$); and CPE ($r=.39$; $p<.05$). Because of concerns about the rather low stability coefficients for the TSOEA CPE subscale, stability coefficients were subsequently computed for each group of teachers within each of the two schools. These coefficients were .19 ($p>.05$) and .65 ($p<.01$), respectively.

RCI Reliability Analyses

Cronbach Alpha internal consistency reliability coefficients were computed for each of the two RCI subscales for the sample of teachers ($n=667$) in 40 schools. For this sample of teachers, Alpha coefficients for each of the RCI subscales were as follows: Superficial/Behavioral Change (SBC) ($r=.79$) and Cultural Normative Change (CNC) ($r=.65$). Table 12 depicts a summary of Alpha reliability coefficients for all instrument subscales, along with the number of items for each subscale, used in the study.

IPOE Reliability Analyses

Cronbach Alpha internal consistency reliability coefficients were computed for the IPOE total instrument scores for the sample of teachers ($n=667$) in 40 schools. For

this sample of teachers the Alpha coefficient obtained for the IPOE was .90. Table 12 depicts a summary of Alpha reliability coefficients for all instrument subscales used in the study.

Results of Analyses for Primary Research Questions

A series of nine primary research questions was used to guide major data analyses in this study. The first two research questions focused on explorations of the nature of the empirically derived constructs measured by the two instruments, the Professional Learning Environment Inventory (PLEI) and the Teacher Self and Organizational Efficacy Assessment (TSOEA), developed for use in this study. Questions three through eight focused on explorations of various quantitative relationships among the professional learning environment, teacher and organizational efficacy, and receptivity to change variables, and dependent measures of perceptions of school effectiveness, student attendance, and student achievement. Question nine focused on comparisons of correlational and descriptive statistical results for independent and dependent variables for a subsample of comparison schools. Results of analyses for each primary research question are presented in the sections that follow.

Research Question 1: What is the nature of the empirically-derived constructs measured by the PLEI?

A variety of factor analyses were completed for the PLEI complete teacher data set using the procedures and decision making rules previously described. Considered collectively, the factor analysis results suggested that a four-factor orthogonal solution represented the best conceptual and statistical fit with the underlying constructs of the

professional learning environment in schools. This solution accounted for 54.4% of the variation in the PLEI data and a total of 27 items were retained on four factors with loadings ranging from .42 to .82. These 27 items were distributed across identified dimensions as follows: Opportunities for Professional Learning and Development (OPLD) (9 items); Teacher/Administrator Relations (TAR) (9 items); Beliefs, Values and Expectations (BEV) (6 items); and Teacher Autonomy (TA) (3 items).

Brief conceptual definitions of the four factored subscales of the PLEI are as follows: 1) Opportunities for Professional Learning and Development include existing events in the school environment which have the potential for enhancing teachers' professional learning through engagement in cognitive processes; 2) Teacher/Administrator Relations include supervisory and non-supervisory interactions between administrators and teachers that pertain to professional learning and participation in professional activities; 3) Beliefs/Expectations/Values include factors or conditions existing in the school culture which define expectations for and enhancement of learning in the school community; and 4) Teacher Autonomy which includes opportunities and conditions which allow for teacher professional decision making in the school environment.

Research Question 2: What is the nature of the empirically-derived constructs measured by the TSOEA?

A variety of factor analyses were completed for the TSOEA complete teacher data set using the procedures and decision making rules previously described. Considered collectively, the factor analysis results suggested that a three-factor

orthogonal solution represented the best conceptual and statistical fit with the underlying constructs of teacher self and organizational efficacy in schools, and provided support for a new conceptualization of a third, collective efficacy construct. This solution accounted for 63.2% of the variation in the TSOEA data and a total of 26 items (items 6 and 14 were retained on factors I and II) were retained on three factors with loadings ranging from .36 to .87. These 26 items were distributed across identified dimensions as follows: Teacher Perceptions of Self Efficacy (TPSE)(10 items); Teacher Perceptions of Organizational Efficacy (TPOE)(8 items); and Collective Perceptions of Efficacy (CPE)(8 items).

Brief conceptual definitions for the three factored subscales of the TSOEA are as follows: 1) Teacher Perceptions of Self Efficacy are defined in terms of the amount of effort and persistence (in spite of some obstacles) that an individual perceives he/she is willing to put forth to accomplish various personal and organizational goals; 2) Teacher Perceptions of Organizational Efficacy are defined in trems of the amount of effort and persistence (in spite of some obstacles) an individual perceives that others in the organization are willing to put forth to accomplish various personal and organizational goals; and 3) Collective Perceptions of Efficacy are defined in terms of individual teacher (self) and other teachers' (others) perceptions of continued willingness to put forth effort to accomplish subsequent goals in spite of past, repeated failure.

The results of the TSOEA factor analyses suggested three separate efficacy dimensions conceptually defined in terms of teacher self efficacy (Me), other teachers'

efficacy as a group (Thee), and all teachers' collective efficacy (We). The first two efficacy dimensions (Me, Thee) reference perceptions of initial levels of motivation/persistence to accomplish school goals. The third dimension (We) references teachers' collective perspectives of persistence in view of repeated failure to accomplish school goals.

Research Question 3: Are there statistically significant, bivariate relationships between professional learning environment variables and the various school effectiveness indices?

Pearson product moment correlational analyses were conducted to explore this research question. Teacher school mean scores for a subsample of 40 schools in which response rates consisted of at least 50% of the teachers sampled in each school were used as the units of analysis. Correlation coefficients were computed between the various PLEI factored subscales and total scores for the IPOE, student average daily attendance (SADA), and standardized student achievement test scores in math (SACHM) and reading (SACHR).

Table 14 summarizes intercorrelations among scores on subscales of the PLEI, TSOEA, RCI and scores on the IPOE. Of interest here, are the findings for the PLEI subscales and the IPOE. Correlations between the PLEI subscales and the IPOE were all statistically significant ($p < .001$), positive in direction, and ranged in magnitude from a low of .43 (TA/IPOE) to a high of .87 (BEV/IPOE).

Table 15 provides a summary of intercorrelations between scores on subscales of the PLEI, TSOEA, RCI and the remaining two school effectiveness indices (student

Table 14

Summary of Intercorrelations Between Scores on Subscales of the PLEI, TSOEA, RCI and IPOE Scores for All Schools (n=40)

Instrument/Subscale	IPOE (8)[a]
PLEI	
Opportunities for Professional Learning/Development (OPLD)(9)[b]	.65**
Teacher - Administrator Relations (TAR) (9)	.57**
Beliefs/Expectations/Values (BEV) (6)	.87**
Teacher Autonomy (TA) (3)	.43**
TSOEA	
Teacher Perceptions of Self-Efficacy (TPSE) (10)	.78**
Teacher Perceptions of Organizational Efficacy (TPOE) (8)	.85**
Collective Perceptions of Efficacy (CPE) (8)	.51**
RCI	
Superficial Behavioral Change (SBC) (8)	.24
Cultural Normative Change (CNC) (10)	.03

[a] Number of items on IPOE
[b] Number of items on Instrument Subscales

* $p<.05$
** $p<.01$

Table 15

Summary of Intercorrelations Between Scores on Subscales of the PLEI, TSOEA, RCI and SADA and SACH Indices for All Schools (n=40)

Instrument/Subscale	SADA	SACHM	SACHR
PLEI			
Opportunities for Professional Learning/ Development (OPLD)(9)[a]	.19	.12	.19
Teacher-Administrator Relations (TAR) (9)	.34*	.05	-.07
Beliefs/Expectations/ Values (BEV) (6)	.27	.27	.22
Teacher Autonomy (TA) (3)	-.01	-.01	.19
TSOEA			
Teacher Perceptions of Self-Efficacy (TPSE) (10)	.29	.20	.10
Teacher Perceptions of Organizational Efficacy (TPOE) (8)	.38*	.29	.19
Collective Perceptions of Efficacy (CPE) (8)	.27	.35*	.21
RCI			
Superficial Behavioral Change (SBC) (8)	-.02	-.25	-.31
Cultural Normative Change (CNC) (10)	-.20	-.39*	-.40*

[a] Number of items on instrument subscales

* p<.05

** p<.01

attendance and student achievement). Only one correlation coefficient between the PLEI subscales and the effectiveness indices was statistically significant (SADA/TAR, $r=.34$, $p<.05$).

Research Question 4: Are there statistically significant, bivariate relationships between efficacy variables and the various school effectiveness indices?

To examine this research question, Pearson product moment correlations were computed between subscales of the TSOEA and the various school effectiveness indices using teacher school mean scores for the subsample of 40 schools as the units of analysis. These results are reported in Tables 14 and 15. Intercorrelations for the TSOEA subscales and the IPOE (Table 14) were all statistically significant ($p<.001$), positive in direction, and ranged in magnitude from .51 (CPE/IPOE) to .85 (TPOE/IPOE). Only two intercorrelations between the TSOEA subscales and the school effectiveness indices of achievement and attendance (Table 15) were statistically significant (SADA/TPOE, $r=.38$, $p<.05$; SACHM/CPE, $r=.35$, $p<.05$).

Research Question 5: Are there statistically significant, bivariate relationships between teacher receptivity to change variables and the various school effectiveness indices?

Pearson product moment correlational analyses were also completed to explore this research question. Teacher school mean scores for the subsample of 40 schools were used as the units of analysis. Correlation coefficients were computed between the two RCI factored subscales and total scores for the IPOE, student average daily attendance (SADA) and standardized student achievement test scores in math (SACHM) and reading (SACHR). These results are reported in Tables 14 and 15.

The RCI/IPOE and RCI/SADA correlations were not statistically significant (Tables 14 and 15). Significant, negative correlations were obtained for the RCI CNC subscale and student achievement in math ($r = -.39$, $p < .05$) and reading ($r = -.40$, $p < .05$) (Table 15).

Research Question 6: Are there statistically significant, multivariate relationships between the various independent variables (professional learning environment, efficacy, and receptivity to change variables) and the dependent variables (school effectiveness, student attendance/school holding power, and student achievement variables)?

To address this research question, two types of multivariate analyses were completed using teacher school mean scores for the subsample of 40 schools as the units of analyses. First, a series of multiple regression analyses (SPSS, 1986) was completed by regressing each dependent variable on each subscale of selected independent variables. Independent variables included all PLEI and TSOEA subscales. Dependent variables for these analyses were the school effectiveness indices (IPOE, SADA, STACH).

Results of the multiple regression analyses completed for the IPOE (dependent variable) and PLEI subscales (independent variables) as well as for PLEI and TSOEA subscales (independent variable set) indicated that the only significant variable to enter into the resulting regression equation for each analysis was the PLEI subscale BEV (Beliefs/Values and Expectations) ($r = .87, F = 118.42$, $p < .0001$). This PLEI subscale accounted for 76% of the total variance among schools in perceived organizational effectiveness.

Multiple regression analyses were completed for the indices of student attendance and achievement in reading and in math. Each index served as a dependent variable for separate regression analyses. Subscales of the PLEI served as the independent variable set for initial analyses relative to each dependent variable, and the PLEI and TSOEA subscales served as an expanded independent variable set for subsequent analyses relative to each of the dependent variables. These analyses yielded no statistically significant ($p > .05$) results.

Secondly, a series of canonical correlation analyses (SAS Institute, 1985) was completed to examine the nature of multivariate relationships between various independent and dependent variable sets. The first canonical analysis was completed using the PLEI subscales (0PLD, TAR, BEV, and TA) as the independent variable set and a dependent variable set composed of selected school effectiveness indices (IPOE, student attendance, and student achievement in reading). Results of this analysis produced two significant multivariate relationships between the two variable sets ($R_{c1}=.89$, $p<.0001$; $R_{c2}=.58$, $p<.04$). Table 16 presents the results of the this canonical variate analysis. For each canonical relationship (R_{c1} and R_{c2}), The first column reports correlations of each variable with the canonical variate of the same variable set. The canonical variate for the PLEI subscales in the first analysis is largely defined by the BEV ($r=.98$) and the OPLD ($r=.71$) subscales. IPOE ($r=.99$) is the main contributor to the canonical variate of the school effectiveness variable set.

For the second significant multivariate relationship, the canonical variate for the PLEI subscales is defined by the TAR ($r=.70$) subscale and the canonical variate for

Table 16

Summary of Canonical Variate Analysis Results for Subscales of the PLEI and a set of School Effectiveness Variables (n=37 Schools)

Variable Sets	R_{c1}=.89,p<.0001 Within[a]	Between[b]	R_{c2}=.58,p<.04 Within	Between
PLEI Subscales				
OPLD	.71	.63	-.05	-.03
TAR	.52	.47	.70	.41
BEV	.98	.87	.17	.10
TA	.46	.41	-.14	-.08
School Effectiveness Subscales				
IPOE	.99	.88	.10	.06
SADA	.16	.14	.43	.26
STACHR	.26	.23	-.48	-.28

[a] Correlations are Pearson product moment correlations between each variable and the canonical variate of the same variable set

[b] Correlations are Pearson product moment correlations between each variable and the canonical variate of the opposite variable set

the school effectiveness variable set is largely defined by the STACHR (r=-.48) index and the SADA index (r=.43). The second column for each canonical relationship in Table 16 reports correlations of each variable with the canonical variate of the opposite variable set. These results, show that for the first canonical correlation between the variable sets (R_{c1}=.89, p<.0001) is primarily accounted for by the contributions of the PLEI subscales BEV (r=.87) and OPLD (r=.63) subscales, and the IPOE (r=.88). For the second canonical relationship, the canonical correlations between the variable sets is primarily accounted for by the TAR (r=.41) subscales, and STACHR (r=-.28) and SADA (r=.26) indices.

The second canonical analysis was completed using the PLEI subscales (0PLD, TAR, BEV, and TA) and the TSOEA subscales (TPSE, TPOE, and CPE) as an expanded independent variable set and a dependent variable set composed of selected school effectiveness indices (IPOE, SADA, and STACHR). Results of this analysis produced one significant multivariate relationship between the two variable sets (R_{c1}=.86, p<.0001). Table 17 presents the results of this canonical variate analysis. The first column in the table reports correlations of each variable with the canonical variate of the same variable set. The canonical variate for the PLEI and TSOEA subscales in this analysis is largely defined by the BEV (r=.94), the TPOE (r=.93), and the TPSE (r=.86) subscales. IPOE (r=.99) is the main contributor to the canonical variate of the school effectiveness variable set. Table 17 also reports correlations of each variable with the canonical variate of the opposite variable set.

Table 17

Summary of Canonical Variate Analysis Results for the Set of Subscales of the PLEI and TSOEA and the School Effectiveness Variable Set (n=37 Schools)

Variable Sets	R_c=.86,p<.0001 Within[a]	Between[b]
PLEI and TSOEA Subscales		
OPLD	.67	.63
TAR	.51	.48
BEV	.94	.87
TA	.44	.41
TPSE	.86	.80
TPOE	.93	.87
CPE	.52	.49
School Effectiveness Variables		
IPOE	.99	.92
SADA	.22	.20
STACHR	.28	.26

[a] Correlations are Pearson product moment correlations between each variable and the canonical variate of the same variable set

[b] Correlations are Pearson product moment correlations between each variable and the canonical variate of the opposite variable set

These results show that the canonical correlation between the variable sets (R_{c1}=.86, p<.0001) is primarily accounted for by the contributions of the PLEI subscale BEV (r=.87) and the TSOEA subscales TPOE (r=.87) and TPSE (r=.80), and the IPOE (r=.92).

Research Question 7: To what extent are teacher perceptions of professional learning environment variables and school effectiveness indices mediated by efficacy variables?

A series of partial correlation analyses was completed to address this research question. Partial correlation coefficients were computed, using teacher school means for the subsample of 40 schools, between subscales of the PLEI and IPOE scores, statistically controlling for the effects of the TSOEA subscale variables. Table 18 provides a summary of bivariate (r) and partial (r_p) correlation coefficients, variance explained in the data by bivariate (r^2) and partial (r_p^2) relationships, and an index of the change in variance (Δr^2) accounted for by the partial correlations controlling for the effects of the TSOEA variables. Results indicated that statistically controlling for the effects of efficacy variables somewhat altered the primary relationship of the PLEI and IPOE variables. Controlling for the effects of the TPSE (Teacher Perceptions of Self Efficacy) variable somewhat reduced the strength of relationship between the PLEI Beliefs/Values and Expectations (BEV) subscale and IPOE sores (r=.87, r_p=.61; p<.0001; Δr^2=.40). Similarly, controlling for the effects of the TPOE (Teacher Perceptions of Organizational Efficacy) variable altered the primary relationship between the PLEI (Beliefs/Expectations/Values) subscale and the IPOE (r=.87, p<.0001; r_p=.45, p<.001; Δr^2=.57).

Table 18

Summary of Bivariate and Partial Correlation Coefficients for Schools (n=40) Between Subscales of the PLEI and the IPOE, Controlling for the Effects of TSOEA Variables

Variables	r	r^2	r_p[b]	r_p^2	Δr^2[c]
OPLD with IPOE/TPSE[a]	.65**	.42	.09	.01	.41
TAR with IPOE/TPSE	.57**	.33	-.15	.02	.31
BEV with IPOE/TPSE	.87**	.77	.61**	.37	.40
TA with IPOE/TPSE	.43**	.19	.36*	.13	.06
OPLD with IPOE/TPOE	.65**	.42	.04	.00	.42
TAR with IPOE/TPOE	.57**	.33	-.16	.03	.30
BEV with IPOE/TPOE	.87**	.77	.45**	.20	.57
TA with IPOE/TPOE	.43**	.19	.29*	.08	.11
OPLD with IPOE/CPE	.65**	.42	.58**	.34	.08
TAR with IPOE/CPE	.57**	.33	.44**	.19	.14
BEV with IPOE/CPE	.87**	.77	.83**	.69	.08
TA with IPOE/CPE	.43**	.19	.46**	.21	-.02

[a] Bivariate correlation variables/partial correlation variable

[b] Partial correlations computed by statistically controlling for the effects of each TSOEA variable

[c] Change in r^2 ($\Delta r^2 = r^2 - r_p^2$)

* $p<.05$

** $p<.01$

Research Question 8: To what extent are teacher perceptions of professional learning environment variables and school organizational effectiveness indices mediated by teacher receptivity to change variables?

Partial correlation analyses were conducted to address this research question. Partial correlation coefficients were computed, using teacher school means for the subsample of 40 schools, between subscales of the PLEI and IPOE scores, and PLEI and SADA and STACH indices, statistically controlling for the effects of the RCI subscale variables. There were no significant changes in the initial bivariate relationships between instrument subscales and the IPOE and attendance and achievement. Thus, PLEI/Effectiveness variable relationships (particularly PLEI/IPOE) do not seem to be mediated by teacher receptivity to change variables.

Research Question 9: To what extent do the general relationships among independent and dependent variables in the study, using school means as the units of analysis, vary within sample schools, using individual teachers as the units of analysis?

Within school correlations of independent variable subscales for all measures used in the study (subscales of the PLEI, TSOEA, and RCI) and dependent school effectiveness indices (IPOE, SADA, STACHR, STACHR) were computed for each of the schools in the subsample of 40 schools. Based on results of simple correlations between independent and dependent variable subscales/measures for the total sample of schools, selected relationships (correlations between selected independent variable subscales and the IPOE) and school means and standard deviations were compared for each school in this analysis. Table 19 presents a summary of within school correlations

Table 19

Summary of Pearson Product-Moment Correlations and Descriptive Statistics for the IPOE and Selected PLEI and TSOEA Subscales for Comparison Schools

School	n[a]	Correlation Coefficient	M	SD	M	SD
		IPOE/OPLD	IPOE		OPLD	
School A	19	.85**	26.7	6.3	20.9	4.6
School B	15	.51*	23.5	4.6	17.0	6.7
School C	12	-.11	34.2	4.6	25.7	4.4
		IPOE/TAR	IPOE		TAR	
School D	10	.87**	31.7	4.3	28.2	5.7
School E	16	.55*	28.1	4.8	25.1	4.9
School F	20	.12	32.4	4.5	23.5	4.4
		IPOE/TPOE	IPOE		TPOE	
School D	10	.81**	31.7	4.3	33.7	4.7
School G	27	.49*	23.6	6.9	28.6	6.2
School H	24	.14	29.1	5.7	31.0	7.3

[a] number of teachers
* $p<.05$
** $p<.01$

and descriptive statistics for selected comparison schools for each of the selected independent and dependent variable relationships. Results for these sample schools are representative of the range and direction in magnitude of relationships among various independent and dependent variables. The descriptive statistics for the various schools shown in the table are relatively comparable from one school to the next.

The results shown in Table 19 indicate considerable variations in relationships among key study variables within selected schools in the sample that depart from the reported relationships between these same variables using school means as the units of analysis (see Table 14). Correlation coefficients for the OPLD/IPOE relationship within schools ranged from -.11 ($p > .05$) to .85 ($p < .01$). The TAR/IPOE correlations ranged from .12 ($p > .05$) to .87 ($p < .01$). Correlations between the TPOE/IPOE ranged from .14 ($p > .05$) to .81 ($p < .01$). A summary of relationships between these variables for the complete sample of 40 schools is included in Table E.1 in Appendix E. The extreme variations among these correlations computed within each school using individual teachers as the units of analysis speak the concerns about the possible contribution of common method variance to the spuriousness of correlations previously reported using school means as the units of analysis. The results shown in Table 19 and further shown in Table E.1 in Appendix E, while not definitive, suggest that covariation among these variables is not systematically due to common teacher self reports for the measures used.

Supplemental Research Questions and Analyses

In addition to the primary analyses, a variety of supplemental analyses were completed as various additional research questions emerged from the results of primary data analyses completed in the study. Results of these analyses are presented below relative to a series of six supplemental research questions.

Supplemental Research Question 1: What is the nature of the empirically-derived constructs measured by the modified Receptivity to Change Inventory?

The Receptivity to Change Inventory (RCI) (Crisafulli, 1982; Hennigar, 1979) had been developed for use in assessing attitudes of middle management administrators and extended to assess teacher perceptions of the extent to which they would be willing to support suggestions for change in their schools. The original form of the RCI consisted of 49 items. Item content was updated and somewhat modified by Chauvin (1992). Results of factor analyses conducted in the Chauvin (1992) study provided a basis for conceptualization of teacher receptivity to change as a two dimensional construct consisting of receptivity to superficial/behavioral change (SBC) and cultural/normative change (CNC). Results of factor analyses (as previously discussed) using teacher data in this study on a modified version of the RCI drawn from Chauvin's adaptation of the instrument provided some support for this two dimensional construct of receptivity.

Supplemental Question 2: Are bivariate relationships between subscales of the PLEI, IPOE, RCI and the IPOE statistically independent of school size?

A series of partial correlation analyses was conducted to address this research question. Partial correlation coefficients were computed, using teacher school means for the subsample of 40 schools, between subscales of the PLEI, TSOEA, RCI and IPOE scores, statistically controlling for the effects of school size. Table 20 provides a summary of Pearson (bivariate) and partial correlation coefficients for comparison analyses. Results indicated that statistically controlling for the effects of school size did little to alter the primary relationship of the PLEI, TSOEA, RCI subscales and IPOE scores. The most notable difference was for the PLEI subscale Teacher/Administrator Relations ($r=.57$; $r_p=.49$). The decrease in the strength of this relationship might be expected given the nature of large schools and resulting inability of administrators to frequently interact with teachers. However, controlling for the effects of school size generally did little to significantly alter the relationship between teacher perceptions of the school professional learning environment, teacher self and organizational efficacy and receptivity to change and perceptions of school organizational effectiveness. Thus, relationships between variables established in this study using school means as the units of analysis seem reasonably independent of school size.

Supplemental Question 3: Are bivariate relationships between subscales of the PLEI, IPOE, RCI and the school effectiveness indices statistically independent of school SES?

A series of partial correlation analyses was conducted to address this research question. Using teacher school means for the subsample of 40 schools, partial correlations were computed between subscales of the PLEI, TSOEA, RCI and school

Table 20

Summary of Partial Correlations Within Schools Between PLEI, TSOEA and RCI Subscales and Student Achievement, Student Attendance and SES after controlling for School Size

Instrument/Subscale	Student Achievement[a] Reading	Math	SADA[b]	SES[c]
PLEI				
OPLD	.19	.14	.09	-.13
TAR	-.08	.00	.22	.15
BEV	.19	.18	.08	-.04
TA	.21	.07	.10	-.19
TSOEA				
TPSE	.08	.15	.11	.08
TPOE	.16	.20	.20	.00
CPE	.19	.29*	.19	-.11
RCI				
SBC	-.30*	-.26	-.17	.21
CNC	-.39**	-.37*	-.22	.32*

[a] NCE Scores on the Stanford Achievement Test Reading and Math Batteries
[b] Percentage of average daily attendance
[c] Percentage of students on free and reduced lunch programs

* $p<.05$
** $p<.01$

effectiveness indices of student achievement in reading (SACHR) and math (SACHM) and student attendance (SADA), statistically controlling for the effects of school SES.

Results indicated that statistically controlling for the effects of school SES did little to alter the primary relationship of the PLEI, TSOEA, RCI subscales and student achievement in reading and math. Relationships between PLEI, TSOEA, and RCI instrument subscales and the student attendance index (SADA) were not significantly altered by controlling for the effects of school SES.

Thus, controlling for the effects of school SES generally did little to significantly alter the relationship between teacher perceptions of the school professional learning environment, teacher self and organizational efficacy and receptivity to change and the school effectiveness indices of student achievement and student attendance. and student socioeconomic status. Generally, the relationships between instrument subscale measures and school effectiveness indices in this study using school means as the units of analysis can be considered reasonably independent of school SES.

Supplemental Question 4: Is there a significant multivariate relationship between the learning environment and efficacy variables and receptivity to change?

To explore this research question, a canonical correlational analysis was completed using the PLEI and the TSOEA subscales as an independent variable set and a dependent variable set composed of subscales of the RCI (SBC and CNC). Results of this analysis produced one significant multivariate relationship between the two variable sets ($R_{c1}=.78$, $p<.001$). The canonical variate for the PLEI and TSOEA subscales in this analysis was largely defined by the PLEI TAR ($r=.78$) and the

TSOEA TPSE (r=.69) subscales. SBC (r=.99) was the main contributor to the canonical variate of the receptivity to change variable set. Results of correlations of each variable with the canonical variate of the opposite variable set. These results showed that the canonical correlation between the variable sets (R_{c1}=.78, p<.001) was primarily accounted for by the contributions of the PLEI subscale TAR (r=.61) and the TSOEA subscale TPSE (r=.87), and the RCI SBC (r=.78) subscale.

Supplemental Research Question 5: Are there significant, bivariate intercorrelations among subscales of the independent variable measures in this study?

Table 21 presents a summary of the intercorrelations among subscales of each of the independent variable measures used in the study for the subsample of 40 schools with a response rate of 50% of the teachers sampled in each school. Pearson product moment correlations among the various instrument subscales ranged from -.03 to .92.

The intercorrelations between the PLEI and TSOEA subscales were positive in direction, rather strong in magnitude and statistically significant for three PLEI subscales (OPLD,TAR, and BEV) and two TSOEA subscales (TPSE and TPOE). Intercorrelations among these subscales ranged from .35 (p<.05) (OPLD/CPE) to .90 (p<.01) (BEV/TPOE). Intercorrelations between the PLEI Teacher Autonomy (TA) subscale and the TSOEA subscales were rather low in magnitude and statistically non-significant with the exception of the TA/TPOE relationship which was positive in direction and rather moderate in magnitude (r=.33, p<.05).

Intercorrelations between the RCI, PLEI, and TSOEA subscales ranged from a low of -.03 (p>.05) (TA/CNC) to a high of .59 (p<.01) (TAR/SBC). Statistically

Table 21

Summary of Intercorrelations Among PLEI, TSOEA, and RCI Subscales for Schools (n=40)

Instrument Subscales	PLEI				TSOEA			RCI	
	OPLD	TAR	BEV	TA	TPSE	TPOE	CPE	SBC	CNC
OPLD									
TAR	.74**								
BEV	.76**	.71**							
TA	.50**	.36*	.35*						
TPSE	.78**	.80**	.88**	.28					
TPOE	.74**	.74**	.90**	.34*	.92**				
CPE	.35*	.48**	.46**	.06	.50**	.52**			
SBC	.45**	.59**	.38*	.13	.53**	.32*	.35*		
CNC	.23	.20	.04	-.03	.18	.00	.08	.55**	

* p<.05
** p<.01

significant correlations between the RCI SBC subscale and the PLEI and TSOEA subscales were positive in direction and moderate in magnitude, ranging from SBC/TPOE, .32 ($p<.05$) to SBC/TAR, .59, (p,.05). However, none of the RCI CNC/PLEI and RCI CNC/TSOEA correlations were statistically significant.

Supplemental Question 6: To what extent does the general relationship established between selected learning environment and efficacy variables using school means as the units of analysis vary within sample schools using individual teachers as the units of analysis?

To explore this research question, Pearson product moment correlations were computed between the PLEI BEV subscale and the TSOEA TPOE subscale within each of the 40 subsample schools using teachers as the units of analysis. The BEV/TPOE subscales were selected because the relationships between these PLEI and TSOEA subscales were stronger than those among the other PLEI and TSOEA subscales ($r=.90$, $p<.01$) (Table 14).

Table 22 displays BEV/TPOE correlations and descriptive statistics for six sample schools computed using individual teachers within each school as the units of analysis. The descriptive statistics are roughly comparable among these schools. However, the correlations are considerably varied in magnitude and direction and range from -.22 ($p>.05$) to .81 ($p<.01$). A complete summary of BEV/TPOE correlations for each of the 40 sample schools can be found in Table E.2 in Appendix E .

Table 22

Summary of Descriptive Statistics and Within School Correlations for the BEV Subscale (PLEI) and the TPOE Subscale (TSOEA) for Selected Comparison Schools

Comparison Schools	r	BEV M	BEV SD	TPOE M	TPOE SD
School I	.81**	18.0	3.1	29.0	8.8
School J	.69**	16.0	4.3	28.6	4.4
School K	.53*	17.5	4.1	30.1	5.0
School L	.27	20.0	2.8	36.2	4.1
School M	.14	21.5	3.6	34.2	7.6
School N	-.02	21.8	2.7	34.7	5.0

* $p<.05$
** $p<.01$

Summary

Chapter 4 presents a summary of the results of data analyses conducted in this study. Descriptive summaries for the study sample for demographic and study variables and for characteristics of the original sample of schools are provided. Results of extensive factor analyses are presented for the PLEI and TSOEA instruments developed for use in this study. Summaries of reliability analyses for all measures and intercorrelations of instrument subscales are reported. A summary of results relative to each of nine primary, and six supplemental research questions is provided.

Chapter 5 presents a summary of major findings of the study and implications for future research, theory development, and practice are discussed.

CHAPTER 5: CONCLUSIONS, DISCUSSION, IMPLICATIONS

This chapter presents a summary of major findings and implications of the study. Included is a brief overview of the study, a summary of findings and conclusions, and a detailed discussion. The discussion focuses on methodological, theoretical and practical implications of the findings and suggestions for future research.

Overview of the Study

This study was designed as an exploration of relationships among a set of school-level organizational/environmental and personal variables and multiple indices of school effectiveness. A model was initially developed for the study that served to organize and conceptualize linkages among school learning environment characteristics, teacher self and organizational efficacies, teacher receptivity to change, and multiple indices of school effectiveness. The study was designed in response to the emerging literatures derived from the study of schools as organizations and school change and effectiveness. It is considered a conceptual and empirical extension of a variety of recent investigations that have attempted to establish linkages between characteristics of schools as complex organizations and social systems, and multiple organizational and school effectiveness variables (Chauvin, 1992; Claudet, 1993; Ellett, Claudet, Loup, Chauvin, Johnson, & Logan, 1994; Johnson, 1991; Logan, 1991). Of particular interest in the study was the extent to which organizational level professional learning environment variables in schools can be linked to multiple indices of school effectiveness through the mediating influences of the personal variables of teacher self efficacy and teacher receptivity to change. Of additional interest was the extent to

which the efficacy construct might be understood as an organizational level variable and how subsequent links to multiple indices of school effectiveness might be established.

The initial conceptual development of the Model of School Change and Effectiveness (MSCE) (Chapter 1; Figure 1) assumed that adult learning, though a highly individual process, occurs within a larger environment which consists of an individual's construction and interpretation of factors external to the self (Kelly, 1955; Lewin, 1947). In addition, learning in organizational settings is considered to be mediated by a host of personal construct variables such as self efficacy (Bandura, 1977). Thus, learning in complex organizations such as schools emanates from a complex set of interactions between characteristics of individuals, and factors, events and conditions in the school social, professional and work environments. From this conceptual perspective, school-related learning for adults is a contingent social process that must be understood as the result of interactions between individuals and the social contexts (i.e., organizational norms, beliefs, values, etc.) in which they function.

As developed for this study, the Model of School Change and Effectiveness (MSCE) also assumed: 1) that professional learning environment characteristics of schools are important elements of productive school change and effectiveness; and 2) that these linkages are mediated by a variety of characteristics of organizational members including self and organizational efficacies, and normative/cultural factors in schools such as those framing personal receptivity to change. Studies related to cultural/normative values and beliefs in schools and subsequent effects on school change processes have collectively posited that change efforts which are in conflict with

cultural norms and beliefs in schools foster organizational resistance, which subsequently decreases the likelihood that organizational goals will be accomplished (Corbett, et al., 1987; Deal, 1990; Rossman, et al., 1988; Waugh & Punch, 1985). In addition, and pertinent to linkages among variables explored in this study, Fuller, Wild, Rappaport, & Dornbusch (1982) have suggested that understanding the relationship between teacher perceptions of individual and organizational efficacy and receptivity to change is crucial to understanding and interpreting school change processes and school effectiveness.

The MSCE focuses on the adult community of learners in schools and depicts primary linkages among opportunity, structural and cultural elements of the professional learning environment of schools and global factors defining the effectiveness of the school as an organization. These primary linkages are thought to be mediated by interactions with self and organizational member personal motivational/attitudinal variables such as efficacy and receptivity to change. Secondary, and less direct linkages in the MSCE are considered probable between professional learning environment characteristics, self and organizational efficacy, receptivity to change and school productivity (student learning and achievement) and school holding power (student attendance) variables. Relationships among variables depicted in the initial MSCE (Chapter 1; Figure 1) are considered highly interactive and reciprocal in terms of cause and effect relations. Thus, interactions among these variables characterize the particular ebb and flow of professional learning, school change and school effectiveness relations in schools.

In order to examine linkages among variables in the MSCE in this study, it was first necessary to develop measures of the professional learning environment of schools and individual and organizational-level assessments of efficacy as well. A review of the existing measurement literatures failed to identify any useful measures of the professional learning environment characteristics of schools, though elements of this construct were evident in instruments previously designed to assess other school organizational variables containing elements of professional learning (e.g., Logan, 1991; Claudet, 1993), and the class-level learning environment literatures are replete with instruments designed to measure psychosocial elements of the learning environment from the student perspective (Fraser & Walberg, 1991). In addition, though the construct of personal efficacy has been discussed in the psychology of personality and learning literatures, and in the literatures pertaining to understanding teaching, schools and school change, no instruments were found that were considered useful in the study of teacher efficacy from an organizational effectiveness viewpoint. This viewpoint focuses upon teacher self and organizational member efficacy related to accomplishing school organizational goals such as: 1) increasing parental involvement; 2) enhancing students' learning; 3) establishing/communicating a vision of what the school ought to accomplish; and 4) establishing and maintaining quality teacher/administrator relationships. Therefore, an important activity in this study was the development of original, psychometrically sound instrumentation to measure these important school-related constructs reflected in the initial MSCE.

A set of nine primary research questions derived from components of the MSCE was used to guide instrument development and data analyses in this study. In addition, a set of supplemental research questions that emerged from the primary data analysis results was explored. By way of summary, these questions centered on: 1) the empirically-derived structure of the professional learning environment and efficacy measures developed for the study; 2) the criterion-related validity and reliability characteristics of these measures; 3) bivariate and multivariate linkages and relationships among variables in the MSCE; 4) unit of analysis and common method variance concerns; and 5) generalizability of relationships among variables in the MSCE across important school demographic characteristics (e.g., school size and socioeconomic status).

The study was completed in a large school district in the southeastern United States comprised of predominantly urban/suburban schools representative of all six geographical regions in the school district. Usable data for measures of school professional learning environment characteristics, teacher self and organizational efficacy, teacher receptivity to change, and school organizational effectiveness were collected in the spring of 1993 from a sample of 1041 teachers representing 53 schools. Student achievement and attendance data for these schools were made available by the district through school-level data profiles.

The sections that follow provide a summary of major findings and conclusions from research and development activities completed in the study.

Major Findings and Conclusions

Development, Validation and Reliability of the Professional Learning Environment Inventory(PLEI) and the Teacher Self and Organizational Efficacy Assessment (TSOEA)

One primary focus of the study was original instrument development. Two instruments were developed to measure components of the MSCE and to explore linkages between these components and the multiple school effectiveness indices: 1) The Professional Learning Environment Inventory (PLEI); and 2) The Teacher Self and Organizational Efficacy Assessment (TSOEA). The nature of each of these instruments is briefly described below followed by a listing of major research findings and conclusions.

Professional Learning Environment Inventory (PLEI)

The version of the Professional Learning Environment Inventory (PLEI) used in this study was developed as a self-report measure of school organizational, structural/communicative and cultural elements, and learning opportunities/activities for adults in the school professional learning environment. Instrument content was grounded in previous conceptions of school organizational environments related to coupling structure (Logan, 1990), organizational supervisory climate (Claudet, 1993), and psychosocial elements of school environments (Fraser, 1979; Rentoul & Fraser, 1983). The PLEI was designed to further expand these initial conceptualizations of school environments to include elements of adult professional learning that occur through various opportunities for professional involvement, administrator/teacher

interactions, and cultural elements that merge in an interactive school environment. Elements of the school professional learning environment depicted in the Model of School Change and Effectiveness (MSCE) (Chapter 1; Figure 1) were used to guide instrument development. The PLEI items were initially developed upon consultation with a selected group of teachers, administrators, and college faculty and were subsequently reviewed by each group for clarity, applicability to school learning environments, and measurement concerns.

Based upon the results of a variety of extensive analyses completed using the PLEI data, the following major findings and conclusions were realized.

1. School-based experts can arrive at high levels of agreement about indicators of characteristics of professional learning environments in schools. This finding supports the content validity of items of the PLEI as indicators of dimensions of school professional learning environments, and it suggests that the construct of professional learning in schools is interpretable and understandable by educators.

2. The PLEI measures four distinct within school dimensions of the professional learning environment in schools; Opportunities for Professional Learning and Development (OPLD), Teacher/Administrator Relations (TAR), Beliefs/Values and Expectations (BEV), and Teacher Autonomy (TA). Each of these PLEI dimensions operationalizes subelements of a larger professional learning environment construct; and each reflects more traditional school organizational, structural and cultural concerns. District-level elements to support teacher professional learning in schools did not attain in the analyses.

3. The professional learning environment in schools is a multi-dimensional construct which is more complex than originally posited in the MSCE. For example: the structural elements dimension of the MSCE appears to consist of two subelements, one relating to teacher/administrator relations and roles, and the other to elements of teacher autonomy. The cultural dimension, originally posited as a conceptual thread which infuses other elements of the school learning environment, was empirically defined as a separate dimension on the PLEI measure.

4. Subscales of the PLEI demonstrate criterion-related validity with the global measure of school organizational effectiveness (IPOE) used in this study. Subscales of the PLEI have their strongest, primary relationships and criterion-related validities with school organizational effectiveness. Significant relationships between the PLEI and the student outcome indices of achievement and attendance were infrequent and rather weak in magnitude. Thus, understanding elements of school professional learning environments measured by the PLEI, as they relate to school organizational outcomes, rather than to more narrow student-related outcomes (such as indices of student productivity or holding power), seems to be a more viable and comprehensive way of interpreting professional learning and change processes in schools.

5. The PLEI subscales exhibit reasonably high internal consistency reliability. The stability of PLEI scores over time, though generally supportive of the reliability of the PLEI subscales, is somewhat unclear given the findings in this study. The results reported here suggest that some professional learning environment characteristics (e.g., Teacher/Administrator Relations) may be more stable over time and less

susceptible to school-related effects than others (e.g., Opportunities for Professional Learning). Considered collectively, the results of PLEI reliability studies reported here suggest that items related to the PLEI subscales, when used in teacher self report measures, are a dependable means of measuring variability among characteristics of the professional learning environment of schools.

The Teacher Self and Organizational Efficacy Assessment (TSOEA)

A second instrument was developed in this study to operationalize the efficacy construct in terms of teacher perceptions of self and organizational efficacy related to the attainment of broad, general school goals. Most conceptions of efficacy and instruments developed for use in schools for assessing teacher efficacy have focused on teacher feelings about their own abilities (personal efficacy), or the abilities of a person holding a teaching position (teaching efficacy) to cope with a range of situations (e.g., classroom management or curriculum issues, facilitating student achievement, etc.) (Ashton, Olejnik, Crocker, & McAuliffe, 1982; Emmer & Hickman, 1991; Gibson & Dembo, 1984). Personal and teaching efficacies in schools have been viewed as rather situationally specific constructs, consistent with elements of Bandura's (1977) theory of self efficacy. However, specific, classroom teaching situations and associated situational efficacies may not be generalizable to more global school goals/concerns that are trans- situational, nor to school organizational level efficacy constructs. Therefore, in this study, efficacy constructs were measured at the individual teacher and organizational member (collective teacher) levels. The efficacy measurement focus in this study was designed to reflect motivational elements of efficacy (initial and

continuing effort and persistence, and persistence in view of repeated failures) pertaining to the accomplishment of broadly defined school goals, rather than to specific teaching situations. Such a focus has not been frequently found in the literature on efficacy, particularly as it has been conceptualized in studies of schools.

Elements of teacher and organizational efficacy depicted in the MSCE (Chapter 1; Figure 1) were used to guide instrument development. Instrument items were initially developed upon consultation with a selected group of teachers, administrators, and college faculty and were subsequently reviewed by each group for clarity, applicability to school contexts, and measurement concerns.

Based on the results of a variety of extensive analyses completed using the TSOEA data, the following major findings and conclusions were realized.

1. School-based experts can arrive at high levels of agreement about indicators of elements of teacher self and organizational efficacy in schools. This finding supports the content validity of items of the TSOEA as indicators of dimensions of self and school organizational efficacy. The fact that such agreement is possible, suggests that educators can understand the meaning of teacher self efficacy and teacher collective (organizational) efficacy as well.

2. The TSOEA measures two conceptual dimensions of efficacy in schools; teacher self efficacy, and teacher organizational (collective) efficacy. These two efficacy constructs, in turn, interact with efficacy behavioral persistence and motivation concerns yielding three empirically demonstrable efficacy variables in schools: 1) Teacher Self Efficacy (TPSE) as it pertains to initial efforts/motivation to accomplish

school goals and motivational persistence to overcome temporary barriers/obstacle in schools; 2) Teacher Organizational Efficacy (TPOE) as it pertains to **all** teachers' initial efforts/motivation to accomplish school goals and motivational persistence to overcome temporary barriers/obstacles in schools; and 3) Collective (Teacher Self **and** Teacher Organizational) Perceptions of Efficacy (CPE). Therefore, the efficacy construct can be both conceptualized and empirically verified at the individual teacher (self/personal or **Me**) level or the teacher organizational (all other teachers in a school or **Thee**) level. However, these two levels merge to define a third **We** efficacy perspective when efficacy motivation is judged in view of teacher responses to repeated failures to accomplish school goals.

The efficacy construct in schools is a multi-dimensional construct which is more complex than originally posited in the MSCE and in current literatures describing efficacy constructs. For example, teachers seem to view their own self efficacy and efficacy of other teachers differently when considering general effort and persistence toward accomplishment of organizational goals. However, and perhaps quite importantly, when faced with failure to accomplish school goals, teachers seemed to merge conceptions of their own, self efficacy with the efficacy of other organizational members, creating a third perspective of a collective sense of efficacy of the self and others only in response to failure.

3. Subscales of the TSOEA demonstrate criterion-related validities with the global measure of school organizational effectiveness (IPOE) used in this study. Some relationships were also found between the cultural dimension (Beliefs/Values and

Expectations) of the PLEI and the TSOEA organizational dimension (Teacher Perceptions of Organizational Efficacy). Subscales of the TSOEA have their strongest, primary relationships and measurement validity with school organizational effectiveness as measured by the Index of Perceived Organizational Effectiveness (IPOE). Only a few, relatively weak relationships were found to exist between the TSOEA and the student outcome (effectiveness) indices of achievement and attendance.

4. The TSOEA subscales exhibit rather strong internal consistency reliability. The stability of TSOEA scores over time, though generally supportive of the reliability of the TSOEA subscales, is somewhat unclear given the findings in this study. The results reported here suggest that some teacher self and organizational efficacy characteristics (e.g., Teacher Perceptions of Self Efficacy and Organizational Efficacy) may be more stable over time and less susceptible to school-related effects than others (e.g., Collective Perceptions of Efficacy). Considered collectively, the results of TSOEA reliability studies reported here suggest that items related to the TSOEA subscales, when used in teacher self report measures, are a dependable means of measuring variability among characteristics of teacher self and organizational efficacy in schools. These subscales, when used in teacher self report measures, are a viable means of measuring variability among schools relative to characteristics of teacher self and organizational efficacy.

Results of Bivariate and Multivariate Analyses

A second focus of the study was on empirical examinations of the linkages among variables as posited in the original MSCE. A series of bivariate and

multivariate analyses was completed among study variables using school means as the units of analysis. Major results and conclusions of these analyses are summarized in the sections that follow.

Bivariate Analyses

Considering the PLEI subscales and TSOEA subscales and school effectiveness indices collectively, results of correlational analyses indicated that these subscales were more strongly related to the organizational effectiveness index (IPOE) used in this study than to the student productivity (achievement) and holding power (attendance) indices. Thus, it seems that variables comprising the professional learning environment of schools and teacher self, organizational and collective efficacies are important elements of school organizational effectiveness.

Among various school organizational elements supporting the professional learning of teachers, those associated with cultural beliefs, norms, values and expectations show the strongest, positive linkages to the organizational effectiveness of schools. The next strongest linkages to organizational effectiveness are professional learning environment variables operationalizing opportunities for teachers' professional learning and development. These findings suggest that organizationally effective schools are grounded in, and may be defined by, cultural characteristics and opportunities for participation in activities that support the professional learning of teachers.

Teachers' perceptions of their own self efficacy and of other teachers' efficacy levels demonstrated rather strong, positive linkages to school organizational

effectiveness as well. To a lesser extent, a collective perception of teacher efficacy (We), was also positively related to school organizational effectiveness. Thus, teacher personal and collective efficacy motivations appear to be important elements that enhance the overall organizational effectiveness of schools.

Relationships between receptivity to change variables, as measured by the modified Receptivity to Change Inventory (RCI), and the school effectiveness indices showed that these variables were not statistically linked to school organizational effectiveness. In addition, cultural/normative and superficial/behavioral elements of receptivity to change were rather weakly linked to the student-related variables of achievement and attendance. These findings suggest that teacher receptivity to change alone, without subsequent, meaningful commitment to change, may not enhance the efficiency, adaptability, flexibility, and quantity/quality of the product(s) of school organizations. Levels of receptivity to superficial/behavioral change measured in this study were, however, positively related to all but one of the PLEI and TSOEA variables (the exception being PLEI Teacher Autonomy), with moderate to moderately strong magnitude.

Considered in toto, the bivariate correlational findings in this study linking elements of the professional learning environment, teacher self and organizational efficacy, receptivity to change and school effectiveness suggest that receptivity to proposed superficial/behavior changes in schools coexists with active teacher professional learning environments and cultures supportive of professional learning in which teachers possess positive efficacy levels. However, receptivity to change alone,

does not appear to be an important element of school effectiveness and does not ap[pear to mediate linkages between school effectiveness and professional learning environment and efficacy variables.

Multivariate Analyses

A series of multivariate analyses was completed in this study to examine linkages among various sets of independent variables and the school effectiveness variables in the MSCE using school means as the units of analysis. These analyses were completed to examine additional complexities in relationship[s among variables that might not be forthcoming from the simpler, bivariate analyses. These analyses included standard multiple regressions, canonical variate analyses and partial correlation analyses.

Results of the various regression analyses indicated that a large portion of the variance in school organizational effectiveness as measured by the IPOE, was accounted for by the PLEI Beliefs/Values and Expectations (BEV) subscale. In combination, the PLEI subscales showed little incremental accounting for variation in organizational effectiveness levels among schools. In addition, when considered in combination, these learning environment variables showed no statistically significant linkages to the student-related variables of achievement and attendance. When combined as an independent variable set with subscales of the TSOEA, the PLEI BEV subscale was the only significant correlate of the IPOE. Again, the combination of TSOEA and PLEI independent variables, when entered into regressions with student achievement and attendance, identified no statistically significant findings. Entering the tow RCI

subscales into these regression models resulted in no interpretable or meaningful relationships.

When contrasted with the results of bivariate analyses described above, the results of the various multiple regression analyses showed that the cultural/normative elements in schools that support teachers' professional learning, appear to be the most important professional learning environment characteristic linked to school organizational effectiveness. Combinations of professional learning, receptivity to change and teacher self and organizational efficacy variables did little to alter this general finding.

A variety of canonical correlation analyses were completed in which the three school effectiveness variables were used as one variable set and various combinations of the PLEI, TSOEA and RCI subscales were used as a second variable set. For the school effectiveness/PLEI analysis, a first, strong canonical correlation (R_c=.89) verified a multivariate relationship between cultural/normative and opportunity to learn characteristics of the school professional learning environment and a school effectiveness variable strongly defined by elements of organizational effectiveness. For this analysis design, a second significant (R_c=.58), multivariate relationship was established that linked the professional learning environment variable of teacher/administrator relations to a student-related effectiveness variable comprised of student reading achievement and attendance. measure.

When the PLEI and TSOEA variables were entered into a canonical correlation analysis as one variable set with the three school effectiveness variables as a second

variable set, a single, strong multivariate relationship was evident (R_c=.86). Interestingly, and importantly given the conceptual framework guiding this study (MSCE), this single multivariate relationship was accounted for by cultural/normative elements of the professional learning environment for teachers and teacher self and teacher organizational efficacies, and the index of school organizational effectiveness (IPOE). These findings suggest that elements of the professional learning environment and teacher efficacy in schools are linked in combination to school organizational effectiveness, but not to student-related outcomes.

A series of partial correlation analyses were completed statistically controlling for the effects of school size and school socioeconomic variables. Additionally, partial correlations were computed between the PLEI subscales and the IPOE statistically controlling for the effects of the TSOEA and RCI subscales. Results of these analyses showed little or no effects when controlling for the school size and socioeconomic variables. This result leads to the primary conclusion that linkages between professional learning environment characteristics and school organizational effectiveness are generalizable across these much studies school demographic variables.

When teacher efficacy effects were statistically controlled and professional learning environment and school organizational effectiveness relations were examined, a variety of interesting results emerged. For example, efficacy effects varied from one PLEI/IPOE variable relationship to the next, and varied by efficacy type (i.e., teacher self, teacher organizational, and collective efficacies). When considering the effects of efficacy types (Me, Thee and We) teachers' collective efficacy had the least effects on

reducing the PLEI/IPOE bivariate relationships. The effects of teacher self and teacher organizational efficacy were repeatedly the strongest elements of efficacy in reducing linkages between cultural/normative and opportunity factors supporting professional learning and school organizational effectiveness. Partial correlations between the PLEI and the TSOEA variables and the three school effectiveness variables yielded no statistically significant findings.

Considered collectively, the results of various bivariate and multivariate statistical analyses completed in this study using school means as the units of analysis depict an interesting, and complex interplay between the various independent and dependent variables originally explicated in the Model of School Change and Effectiveness (MSCE). The results show that variations among schools in different definitions of effectiveness can best be explained by cultural/normative and opportunity elements of the professional learning environment, teacher self and organizational efficacies and their linkages to school organizational effectiveness, rather than to more traditionally explored student-related effectiveness variables.

Units of Analysis

Review of within school correlations between the various independent and dependent variable subscales revealed considerable variations in relationships among key study variables within schools in the sample that departed from the relationships observed between the same variables using school means as the units of analysis. For example, general relationships between the PLEI OPLD subscale and the IPOE for schools was $r=.65$ ($p<.01$), while this same relationship upon inspection of within

school correlations varied from r=-.11 (p>.05) to r=.85 (p<.01). These results suggest that comparisons made using schools as the units of analysis may mask a considerable number of important differences within schools. These unit of analysis findings replicate findings from a series of recent studies on school organizational/environmental level/effectiveness variables (Chauvin, 1992; Claudet, 1993; Johnson, 1991; Logan, 1990) and they have both methodological and theoretical implications as discussed below.

Discussion and Implications

This study was designed to explore initial relationships among a set of school organizational/environmental and teacher personal variables and multiple indices of school effectiveness. The study was grounded in four pertinent bodies of theory and research-based literature: 1) school effectiveness; 2) the study of school learning environments; 3) personal and organizational efficacy pertaining to adult learning; and 4) studies of school change. These variables were initially integrated into a conceptual framework (the Model of School Change and Effectiveness) (MSCE) (Figure 1; Chapter 1) that served to organize the study variables and to derive a set of primary and supplemental research questions to be investigated in the study. Exploring linkages among variables in the study was considered important to the further explication of the MSCE as a framework for understanding school change, schools as complex organizations in which adult learning reflecting professional values, norms and expectations occurs, and school change and effectiveness.

The major findings and conclusions from this study described above suggest a four-part discussion that includes concerns for: 1) the original instruments developed for the study (PLEI and TSOEA) and the modified form of the RCI; 2) conceptual and theoretical concerns relative to the MSCE developed to guide the study; 3) methodological and research design issues pertinent to the study of school effectiveness and schools as organizations; and 4) implications for research, theory development and practice. The section that follows addresses these concerns.

Instrumentation

An initial activity in the study related to the development of original measures of two variables in the MSCE: 1) characteristics of the school professional learning environment; and 2) teacher self and organizational efficacy. Original teacher self-report measures for these variables were developed and construct validated. In addition, examinations of instrument reliabilities were completed. Results of the analyses shed considerable light on the nature of subelements of the professional learning environment in schools and the nature of the human efficacy construct as it applies to teacher motivation and goal-related activity in schools.

The Professional Learning Environment Inventory (PLEI) developed for the study operationalizes four important subconstructs of teachers' perceptions of characteristics of professional learning elements in schools: 1) Opportunities for Professional Learning and Development (OPLD); 2) Teacher/Administrator Relations (TAR); 3) Beliefs/Expectations and Values (BEV); and 4) Teacher Autonomy (TA). This new instrument is partially derived from prior work (Claudet, 1993; Logan, 1990)

to develop measures of school learning environment/climate and school organizational coupling characteristics. However, it has a much broader focus on a construct of adult learning in schools that is grounded in concerns for professional learning, rather than other kinds of learning. Thus, a major assumption upon which the PLEI was constructed is that schools represent active, professional learning environments for teachers and that such environments can be described in terms of school organizational elements which support and enhance professional learning.

Content and criterion-related validity analyses and examinations of the PLEI's empirical structure using factor analyses, collectively supported the construct validity of this new instrument. The four PLEI dimensions identified and validated measure four separate school organizational elements that collectively support and enhance professional learning for teachers in schools. These include: 1) both formal and informal activities/opportunities for learning such as professional conversations among organizational members, staff meetings focusing open discussion of teaching and learning effectiveness, etc.; 2) the quality of professional interactions and relationships among teachers and administrators; 3) cultural norms, beliefs, expectations and values centered on teachers' continuing professional development and expectations for student learning; and 4) concern for teacher personal autonomy as it pertains to making professional decisions about teaching and learning activities. Though these four organizational elements are empirically verifiable, they are considered to operationalize a more global construct of a professional learning environment in schools. This more global construct, as shown in this study, shows rather strong, primary linkages to

school organizational effectiveness rather than to student-related outcomes.

Past attempts to develop instruments to measure learning environment characteristics have largely focused on class level procedures and psychosocial variables viewed from students' collective perspectives (Fraser & Walberg, 1991). In addition, there have been attempts to adapt classroom learning environment measures to tap students' perspectives of school-level variables (Payne & Ellett, 1974; Rentoul & Fraser, 1983). More recently, there have been attempts to expand learning environment research to school-level concerns reflecting teachers' views of school structural coupling characteristics (Logan, 1990) and school professional/supervisory climate (Claudet, 1993). The PLEI is the first comprehensive instrument known that has been specifically designed to measure key factors within school organizations that support and enhance the professional learning of teachers. Measuring this construct has potential for studying teacher development in schools (Fullan, 1991), for better understanding the role and functions of teachers and other school organizational members as part of a larger school learning community (Brandt, 1992), for developing a broader conceptual concerns for learning density in schools (i.e., learning in schools is not the sole property of students); and for understanding professional learning of adults in schools and how such learning is linked to other important school organizational variables and to multiple indices of school effectiveness. The PLEI appears to have promise as an instrument that can be used in future research on schools to explore each of these important, future research and theory development concerns.

Because of the paucity of items and concern about increasing statistical reliability, the PLEI Autonomy subscale appears to need additional modification/revision through future research studies. It should also be recognized, that the PLEI measures only four school organizational factors that support and enhance teacher professional learning in schools. Future studies may well identify others such as district and/or state level resources/supports, etc.

A second original instrument developed for this study was the Teacher Self and Organizational Efficacy Assessment (TSOEA). This instrument was designed to measure motivational elements of the human efficacy construct as reflected in social learning theories originally described and further explicated by Bandura (1977; 1982; 1993). The results of various analyses of the TSOEA served to identify three important dimensions of teacher efficacy in schools as they pertain to teacher motivation directed toward the accomplishment of various school organizational goals: 1) teacher self (personal) efficacy (**Me**); 2) teacher organizational efficacy (perceptions of other teachers in a school) (**Thee**); and 3) teacher collective efficacy (teacher self and teacher organizational efficacy) (**We**).

Each of these teacher efficacy elements appears to interact in a complex manner with the motivational bases of individual and collective teacher behavior from initial motivation/perseverance to accomplish goals, through attempts to persist in accomplishing goals in spite of repeated failures. Interesting, and importantly, the factor structure of the TSOEA identified in this study suggests that teacher self (Me) and teacher organizational efficacies (Thee) become a perceptual unity (We) when

teachers assess their own and other teachers' motivations to persist in spite of repeated failures to accomplish broad-based school goals. Thus, teachers differentiate between their own personal efficacy motivation levels and those of other teachers in the school when assessing initial levels of effort and persistence to accomplish school goals and in levels needed to overcome routine barriers/obstacles to goal accomplishment (typically judging their personal efficacy levels somewhat higher than levels of other teachers). However, no such differentiation is apparent when teachers are asked about personal and organizational (other teachers in the school) efficacy levels as these pertain to responses to repeated failures to accomplish school goals. These findings identify a collective sense of teacher efficacy motivation in schools that may be evidenced in schools that have a history of repeated failure to accomplish broad-based goals such as those measured by the TSOEA (e.g., the enhancement of student learning, increasing parent involvement, etc.). Interestingly, in this study, the highest reported levels of teacher self efficacy were found in schools that had the highest percentages of students receiving free or reduced cost lunches (lowest SES).

Past research and development work concerned with studies of human efficacy have typically focused on self efficacy concerns. Little attention has been given to expanding the efficacy construct to include organizational and collective perspectives of human efficacy. In addition, most teacher efficacy research has been concerned with the measurement and study of efficacy as it pertains to classroom level, teaching and learning variables. The TSOEA has been designed to reflect concern for teacher self and teacher organizational efficacy constructs as these pertain to the accomplishment

of global, trans-situational school goals. Thus, it offers a rich alternative to measure and study teacher efficacy motivation in schools as a school organizational level variable. In addition, the differentiation in this study among three subelements of teacher efficacy in schools (**Me, Thee and We**), and the interactions of these subelements with levels of initial and continuing teacher motivation, suggests that the efficacy construct applied to understanding teacher motivation in schools is more complex that previously noted in the literature.

A modified version of the Receptivity to Change Inventory (RCI) (Hennigar, 1979; Chauvin, 1992) was used in this study to measure teacher receptivity to suggestions about specific planned change in schools. Two RCI dimensions (cultural/normative and superficial/behavioral) had previously been identified by Chauvin, 1992). Selected items for these dimensions were used to define the modified RCI used in this study. Analyses completed in this study confirmed the two-dimensional structure of the RCI. However, close examination of specific RCI item content suggests that the concepts of teacher receptivity to change measured need to be considerably broadened to reflect more than the current focus on policy-related changes.

Conceptualizing a Model of School Change and Effectiveness

The original Model for School Change and Effectiveness (MSCE) (Chapter 1, Figure 1) developed to guide this study was designed to depict hypothesized linkages and relationships between the professional learning environment characteristics of schools and multiple indices of school effectiveness. These linkages were conceptualized as being mediated by the influences of selected personal characteristics

of teachers (teacher self and organizational efficacy motivations, and teacher receptivity to change). The professional learning environment of schools was originally defined as an element of the larger school culture that encompassed structural/organizational and learning opportunity elements. School effectiveness in the MSCE was broadly defined and reflected multiple operational definitions of: 1) school organizational effectiveness; 2) school holding power; and 3) school productivity. Research questions derived from the original MSCE were designed to explore the magnitude and direction of linkages of variables in the model and the potential mediating influences of teacher efficacy and receptivity to change on linkages between teacher professional learning and school effectiveness. Considered collectively, the results of this study suggest that conceptualizations of some of the variables in the original MSCE, and linkages between variables in the MSCE, need to be altered.

A revised form of the MSCE is included in Figure 2. Variables and variable relationships in this model reflect syntheses of the results of data analyses completed in this study. Though specific statistical causal analysis procedures were not completed in this study (e.g., LISREL, Path Analyses, etc.), and key variables in the MSCE were considered reciprocal in their influences, the bivariate and multivariate analyses completed provide considerable support for the structure and linkages among variables shown in the revised MSCE. Figure 2 depicts a variety of changes in the original conceptualization and proposed linkages among variables in the original MSCE. These include the following:

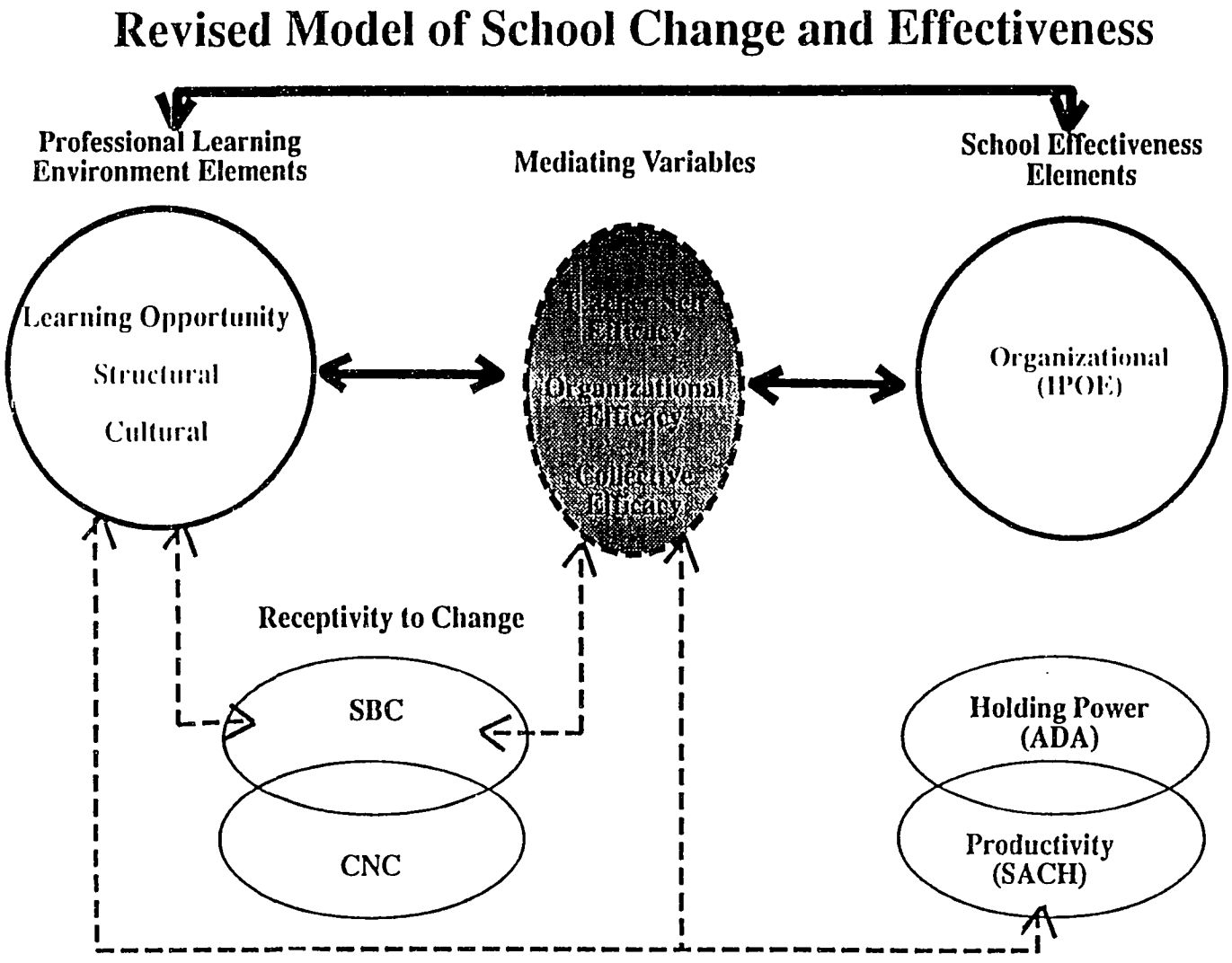

Figure 2: Revised Model of School Change and Effectiveness

1. The teacher Professional Learning Environment in schools includes three separate subconstructs reflecting learning opportunities, structural elements (teacher autonomy and teacher/administrator relations) and cultural elements (norms, beliefs, expectations and values).

2. The mediating variable of teacher efficacy contains three separate components reflecting teacher self efficacy (Me), teacher organizational efficacy (Thee), and teacher collective efficacy (WE).

3. School effectiveness elements consist of school organizational effectiveness variables (efficiency, flexibility, adaptability, quality/quantity of product) and separate student-related effectiveness outcomes (school holding power and productivity). The organizational effectiveness elements show no relationship (no connecting lines) to the student-related outcome effectiveness elements. However, the holding power and productivity elements are moderately related to each other (overlap in ADA and SACH shown in Figure 2).

3. Teacher Receptivity to Change consists of both superficial/behavioral and cultural/normative elements that are moderately related to each other (overlap in SBC and CNC shown in Figure 2).

4. The primary linkages among variables (solid lines) in the MSCE are between elements of the professional learning environment, teacher efficacy and school organizational effectiveness.

5. The teacher efficacy variables moderate linkages (shaded oval) between elements of the professional learning environment and school organizational effectiveness.

6. The teacher personal variable of receptivity to change is only very weakly linked (dotted lines) to professional learning environment characteristics and to teacher efficacy; and these weak linkages are primarily with superficial/behavioral receptivity to change concerns.

7. The student-related school effectiveness outcome variables are only very weakly linked (dotted lines) to teacher efficacy and to elements of the professional learning environment of schools; these weak linkages are primarily with student achievement (SACH).

The modifications in the original MSCE (Figure 1; Chapter 1) shown in the revised MSCE in Figure 2 suggest a variety of issues pertaining to the study of school effectiveness, school change and the study of schools as organizations. First, the professional learning environment of schools is a multidimensional construct reflecting opportunity, structural and cultural elements that support and enhance teacher learning. This construct appears to be an important element of school organizational effectiveness and is mediated by levels of teacher efficacy motivation. Thus, organizationally effective schools can be characterized as schools that maintain strong learning environment elements for teachers and as schools in which teachers perceive a strong sense of personal and teacher organizational efficacy motivation. The mediational role of efficacy motivation in linking professional learning and school organizational

effectiveness is not surprising given the historical conceptualization (and considerable research findings as well) that documents the role and importance of motivation to human learning.

Secondly, while the role of teacher receptivity to school change and reform has been much discussed in the school change literatures, the revised MSCE suggests that teacher receptivity to change (as measured in this study) is not an important element of the organizational effectiveness of schools, and it appears only very weakly related to student-related school effectiveness outcomes. Thus, the receptivity to change perspective may not be as useful as a motivation/learning perspective when attempting to understand school organizational effectiveness, and when attempting to develop more effective schools. The findings in this study and linkages shown in the revised MSCE suggest that school change and effectiveness can be understood more clearly from the professional learning and efficacy motivation perspectives than from concerns about teacher receptivity to change. It should be recognized, however, that teacher receptivity to change in this study was linked to a global measure of school achievement as measured by standardized achievement test scores...not more specific measures of student learning at the individual classroom level. Thus, caution should be taken in so as not to overinterpret understandings about linkages between teachers' receptivity to school changes and subsequent student learning and school improvement.

Third, linkages in the revised MSCE show that school organizational effectiveness is rather independent of more traditionally used variables in school effectiveness studies (e.g., student achievement). This finding is consistent with those

of a variety of other recent studies linking school organizational/environment variables to school effectiveness indices (Claudet, 1993; Johnson, 1991; Logan, 1990). The lack of direct linkages between these different school effectiveness indices suggests concern for broadening the conception of effectiveness as it applies to schools, with a clear separation between school organizational effectiveness and student-related, school outcome effectiveness constructs.

Last, student ADA shown in the MSCE was used in this study as a proxy measure (consequence/outcome) of a theoretical variable previously referred to as school" holding power" (Morris, 1986). From a larger theoretical perspective, school holding power refers to the sum of school characteristics that serve to enhance the total positive valence of the school to attract and hold its clientele (students in this study). Findings from this study and the revised MSCE shown in Figure 2 show that student attendance is not associated with the quality of the professional learning environment for teachers, nor, and quite interestingly, is it associated with variation in levels of teacher efficacy motivation. Apparently these teacher-related variables have little to do with the holding power of schools for students. It may be, that student attendance is more directly related to holding power variables that serve to enhance the attractiveness (and positive valence) of schools such as the quality of the psychosocial environment of learning (Fraser & Walberg, 1991), the robustness or "dramatic content" of schools (Johnson & Licata, 1991) and the quantity and quality of instruction (Ellett, Loup & Chauvin, 1990; Teddlie & Stringfield, 1993). For example, there is evidence in prior research concerned with school holding power (Morris, 1986) that student attendance

in secondary schools is positively, and rather strongly correlated with students' perceptions of the robustness of student peers, school social activities and even parents. Thus, the theoretical holding power of schools may be defined and enhanced by different sets of variables internal and external to schools for teachers than for students.

Methodological and Research Design Issues

The results of this study yielded a variety of methodological issues and research design concerns that might be addressed in future research studies. Basic data collected in the study stemmed from teacher self reports. With such procedures, there is always concern about the possible contaminating effects of response set, social desirability of responses, halo effects and so on. The results of within school analyses completed in this study and instrument reliabilities suggest that the teacher self report data were generally dependable and reasonably error free. However, future studies might use a variety of other methods and design elements to enrich understandings of the variables explored here. The use of qualitative data collection methods subsequent to quantitative analyses in this study may have served to additionally inform the interpretability of linkages among the various independent and dependent variables similar to findings in another study of school organizations and school effectiveness recently completed by Claudet (1993).

In terms of the instruments used in this study, future studies need to be completed to further the development of some existing scales (e.g., the PLEI Autonomy scale) and to broaden the conceptual basis of some instruments (e.g., the RCI). The concept of professional learning in schools reflected in a broader notion of learning

density in schools, might be expanded to include other variables (e.g., the quantity/quality of learning resources in a school), other respondents (e.g., principals and other staff) and other measurement methods (e.g., direct observation, interviews, etc.). Though not evident in this study, it may be that future development of district-level items for the PLEI, for example would result in a PLEI dimension that measures external support for adult learning in schools.

The TSOEA was used to examine teacher efficacy levels in view of four, global, trans-situational goals: 1) enhance learning of students; 2) increase parent involvement; 3) establish/communicate school vision; and 4) establish professional teacher/administrator relationships. The TSOEA, like some other existing, and widely applicable instruments useful in research on schools (e.g., the Robustness Semantic Differential, Licata & Willower, 1978), is flexible in scale format and can be applied to a large number of other school organizational and/or individual goals. Future studies might examine levels of teacher efficacy motivation in view of a variety of other important school goals. Of considerable interest in these studies, is replication of the teacher self (Me), teacher organizational (Thee), and teacher collective (We) efficacy subconstructs. If this structure generally replicates, then greater theoretical clarity and support would be provided for conceptions of teacher personal and organizational efficacy motivation.

Of considerable methodological importance in this study were the results of the within school analyses completed. A variety of significant relationships was established between various independent and dependent variables in the MSCE using school means

as the units of analysis. These relationships were used to guide similar analyses within each school in the sample using individual teachers as the units of analysis. These within school analyses showed considerable variation in the magnitude and direction of linkages between independent and dependent variables from one school to the next. These quantitative findings replicated those identified in a variety of other recent studies (Claudet, 1993; Chauvin, 1992; Johnson, 1991; Logan, 1990). These replicated findings show the importance of subsequent school outlier analyes and the value-addedness of followup qualitative studies of schools as recently completed by Claudet (1993). A summary of unit of analysis issues and implications for the study of school effectiveness and schools as organizations from these recent studies has been made by (Ellett, et.al, 1994). Thus, future quantitative studies of school effectiveness and linkages to school organizational/environmental variables can be enriched both methodologically and theoretically by combining quantitative and qualitative methodologies.

Implications for Future Research, Theory and Practice

The original conceptualization of this study, when considered in view of the study results, have a variety of implications for future research, development of theories of schools as organizations, school change and effectiveness and for practice as well. First, conceptions of school effectiveness have been popularized by the recent history of school effectiveness and school effects studies. While valuable, this line of inquiry has seemingly failed to identify and separate the meaning of different indices of school effectiveness. Traditional school effectiveness studies (e.g., Brookover and Lezotte,

1979; Edmonds, 1979; 1983), have been primarily concerned with student-related outcome (achievement) definitions of school effectiveness in view of school socioeconomic characteristics. More recent work in this area has recognized the need to broaden the study of school effectiveness to include within school, class-level variables (Teddlie & Stringfield, 1993) and considerations of school effectiveness context issues (Wimpelberg, Teddlie, & Stringfield, 1989). Recent attention has been given as well in the school effectioveness and school effects literatures to the importance of understanding linkages between school effectiveness (student achievement) and school cultural/organizational variables. However, these studies continue to be concerned with student-related outcome (as opposed to school organizationa) definitiions of effectiveness. In addition, recent, large scale meta analyses and summaries of the effects of schooling have primarily focused on student-related effectiveness concerns (Wang, Haertel, & Walberg, 1994).

What seems needed, is a broader consideration of the school effectiveness construct and subsequent theory to include the effectiveness of schools as organizations as well. As shown here, and in a variety of other recent studies (e.g., Claudet, 1993; Johnson, 1991; Logan, 1990), there are sets of important school structural, cultural and learning environment variables that can be meaningfully linked to the study of school organizational effectiveness quite apart from any linkages to student-related outcomes (e.g., achievement and attendance). What seems needed is a more general, integrated theory of school effectiveness to encompass findings from studies of schools as organizations, as well as, studies of school effectiveness and effects. Such a conception

would treat school effectiveness as the most abstract and highest level construct, with school organizational effectiveness and student-related school outcomes (e.g., achievement/productivity, holding power/attendance) as subconstructs with their own lines of inquiry.

This higher order conception of families of lines of school effectiveness inquiry, subsumed under a larger and more general theory of school effectiveness might prove beneficial from several perspectives. For example, known correlates and predictors of student productivity such as student motivation, time-on-task, psychosocial perceptions of the classroom learning environment, the quantity and quality of teaching, the educational quality of the home environment, etc., might be cross-linked through future research with known correlates of the effectiveness of schools as organizations (e.g., structural coupling features, professional/supervisory climate, professional learning environment characteristics, teacher self and organizational efficacies, centralization of decision making, etc). Though speculation abounds, not much has been empirically demonstrated and less is known about linkages between individual student-related variables predictive of learning and achievement, and school level cultural, structural, and environmental variables linked to school organizational effectiveness. Concern for accommodating school level effects in future school effectiveness research studies has recently been shown in the work of Teddlie & Stringfield (1993), and some prior attempts at minor integrations of school effectiveness literature have been made (Bossert, 1988). However, recent research syntheses such as those described by Wang, Haertel & Walberg (1994) fail to include, in any systematic way, findings from a host

of studies on school organizational effectiveness. On the other hand, and to make the need for integrated school effectiveness research studies and theory development more clear, treatises and summaries of research on schools as organizations (e,g, Boyan, 1988; Hoy and Miskel, 1991) have failed to adequately address findings from student-related, school effectiveness and effects studies completed during the past two decades. What seems needed is an integration of these two families of lines of inquiry in the study of school effectiveness in a manner that allows them to better inform each other. If this can be done, then a more general theory of school effectiveness can be developed to guide future research and our understanding of the complexities of schools can be broadened.

This study uniquely examined the role of teacher efficacy motivation and its linkages to school organizational effectiveness. Of considerable theoretical and future research interest were the findings that teacher self, teacher organizational and teacher collective efficacy motivations can be identified and measured in schools. The motivational elements of teacher efficacy related to initial task effort and persistence and the everyday overcoming of barriers/obstacles to goal attainment, can seemingly be differentiated from teachers' collective efficacy as it relates to persistence in the face of repeated school failures. This understanding of teacher efficacy is unknown in the efficacy literature. The metaphors of **Me**, **Thee**, and **We**, used in this study to described these subelements of the larger teacher efficacy motivation construct were empirically derived from factor analyses of the TSOEA in view of a set of four, broad-based school organizational goals. Thus, they are not purely speculative.

Apparently, in the history of repeated failures in schools, teacher self and other teachers' efficacies merge into a singular efficacy construct reflective of an efficacy cohesion effect. That is, a collective sense of efficacy (We) in which teachers do not differentiate their own levels of self efficacy from that of other organizational members (teachers). This efficacy cohesion effect may develop over time only in response to repeated failure of a school to accomplish important school outcomes. This finding may have implications for understanding teacher motivation in schools as it is linked to school organizational effectiveness, elements of the professional learning environment and school reform and change. For example, it was noted in this study sample, that schools that possessed the lowest socioeconomic levels (and typically the lowest achievement) were characterized by the highest levels of teacher self efficacy. Consistent with earlier efficacy theories (Bandura, 1977), teacher self efficacy in these situations may develop from the repetitions of behaviors and actions and subsequent consequences that come about with daily work challenges...even though demonstrable successes may be slow to come about. Small successes in these difficult school contexts, when combined with the social incentives accompanying these successes, may have a powerful effect on the development of teacher self efficacy motivation. In these settings, small, step-at-a-time successes, may generate considerable personal rewards for teachers which serve to enhance efficacy motivation as it pertains to subsequent challenges. Though not demonstrated in this study, it may be that efficacy cohesion effects among teachers are potentially stronger in difficult school contexts (e.g., poor,low achieving schools), and this group efficacy motivation phenomenon serves to

facilitate general school change and greater effectiveness...both organizationally and from the student outcomes perspective. Future research studies might attempt to better understand efficacy cohesion effects and how these relate to facilitating school change efforts.

There has been much written in the efficacy literature about how this construct develops in humans, how it serves to mediate human learning and performance, and its mastery (competence) and motivational elements (Bandura, 1977, 1982, 1989, 1983). In addition, teacher efficacy in schools has been explored in relationship to classroom concerns such as student behavior management (Gibson & Dembo, 1984). However, there are no known studies of teacher efficacy motivation at the school organizational level like the one described here. The findings from this study, and resulting interpretations of these findings, call for not only additional research of teacher efficacy motivation at the school organizational level, but additional theory development as well.

Linkages between characteristics of the professional learning environment of schools and school organizational effectiveness in this study have implications as well. The finding that cultural, structural and opportunity elements for such learning are linked to school organizational effectiveness (and not to student-related outcomes) provides information for broadening the meaning of school organizational effectiveness. While organizational effectiveness in schools is typically associated with goal and resource models and perspectives (Hoy & Miskel, 1991), the results described here suggest a broader definition of this construct. When combined with the results pertaining to teacher efficacy motivation described above, the results of this study

suggest that organizationally effective schools can be understood not only in terms of their efficiency, adaptability, flexibility, etc.; but also as schools in which professional learning opportunities for teachers are rich (enhanced learning density) and in which teacher efficacy motivation is strong. Thus, school administrators, policy makers and others desiring to increase school organization effectiveness, might do well to allocate time, resources and efforts to better teacher professional learning opportunities and to enhance teacher efficacy motivation individually, organizationally and collectively.

Finally, this study provides continuing insights into linkages between school organizational variables and multiple indices of school effectiveness that have implications for school administration and school change. The results, while not generated through a true experimental design or through the use of causal modeling methodologies, suggest that school organizational variables have their primary linkages to the effectiveness of the school as an organization, rather than to more traditional school effectiveness variables such as student achievement (Teddlie & Stringfield, 1993). As measured in this study, school organizational effectiveness is concerned with elements of organizational adaptability, flexibility, latency and goal direction (Hoy & Miskel, 1992; Parsons, 1960). When combined with the results of other recent studies (Logan, 1990; Johnson, 1991; Chauvin, 1992; Claudet, 1993), the findings reported here identify numerous organizational features that begin to define the organizational effectiveness of schools.

In addition, the results of these studies suggest that organizational effectiveness, while not sufficient, may be a necessary condition to increase school holding power

(e.g., attendance) and productivity (i.e., student achievement). Thus, the first consideration for effective school leaders and for school improvement and change efforts may be to enhance school organizational effectiveness by measuring and altering various organizational features of schools (e.g., organizational coupling features, decision making structures, organizational/supervisory climate, etc.). It should also be recognized that analyses of selected, individual schools in this study showed that some of the poorest and lowest achieving schools had the highest PLEI, TSOEA, and IPOE scores. Thus, making positive changes in school organizational features and effectiveness seems no guarantee that increases in school holding power and productivity will automatically follow. This finding is reminiscent of Glickman's (1987) call for first making schools "good" schools, then attempting to make them more "effective" schools.

The findings previously discussed about the conceptual nature of teacher self and organizational efficacy suggest additional implications for school change and improvement. For example, the collective (We) perspectives of efficacy were evident when teachers in these schools were asked about their personal responses and those of their teacher colleagues to repeated failures. Teachers clearly differentiated the Me and the Thee elements of efficacy when asked about levels of effort/persistence to accomplish goals and overcome impediments to accomplishing goals. These findings suggest that change efforts in schools that have a history of repeated failures (e.g., demonstrably ineffective schools as identified in the school effectiveness literature) may profit from first developing among organizational members (teachers in this study) a

sense of collective (We) efficacy. Thus, school improvement efforts targeting collective, group concerns and energies may yield the highest organizational returns and the greatest individual and organizational efficacy changes. Conversely, individual (Me) and organizational (Thee) elements of efficacy development may be important for school change agents to consider in newer, developing schools, particularly those with cadres of new, inexperienced teachers.

Summary

Chapter 5 presented a summary of major findings from the results of the study and implications for future research design and methodology, theory development, and practice were presented.

This study was designed in response to the emerging literatures derived from the study of schools as organizations and school change and effectiveness. It is considered a conceptual and empirical extension of a variety of recent investigations that have attempted to establish linkages between characteristics of schools as complex organizations and social systems, and multiple organizational and school effectiveness variables (Logan, 1990; Johnson, 1991; Chauvin, 1992; Claudet, 1993). In addition, findings in this study generally replicated findings from these recent investigations that general relationships between variables established using school means as the units of analysis were considerably at odds with the variation in results within schools using individual teachers as the units of analysis. This repeated pattern of findings suggests that conceptual frameworks developed for studying organizational features of schools and linking these features to school effectiveness indices, as well as to theories of

schools as organizations, must accommodate variation among schools as well as variation in linkages among variables within schools.

In addition, the considerable variation noted within schools in the general findings using school means as the units of analysis, provide some support for a model of Two-Stage (quantitative and qualitative), Two-Level (schools and individuals within schools) theory development (Claudet, 1993) in the study of schools as organizations.

REFERENCES

Allport, G.W. (1957). Personality: A psychological interpretation. New York: Holt.

Amidon, E.J., & Hough, J.B. (Eds.) (1967). Interaction analysis: Theory research and application. Reading, MA: Addison-Wesley.

Anderson, C.S. (1982). The search for school climate: A review of the research. Review of Educational Research, 52(3), 368-420.

Anderson, G.J., & Walberg, H.J. (1974). Learning environments. In H.J. Walberg (Ed.).Evaluating educational performance: A sourcebook of methods, instruments, and examples. Berkeley, California: McCutchan.

Ashton, P., Olejnik, S., Crocker, L., & McAuliffe, M. (1982). Measurement problems in the study of teachers' sense of efficacy. Paper presented at the Annual Meeting of the American Educational Research Association, New York, Ny.

Ashton, P.T., & Webb, R.B. (1986). Making a difference: Teachers' sense of efficacy and student achievement. New York, Longman.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. Psychological Review, 84, 191-215.

Bandura, A. (1978). The self system in reciprocal determinism. American Psychologist, 33, 344-358.

Bandura, A. (1981). Self referent thought: A developmental analysis of self-efficacy. In J. Flavell, & L. Ross (Eds.), Social cognitive development: Frontiers and possible future (pp. 200-239). Cambridge: Cambridge University Press.

Bandura, A. (1982). Self-efficacy mechanism in human agency. American Psychologist,37, 122-147.

Bandura, A. (1986). Social foundations of thought and action. Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1993). Self-efficacy mechanism in sociocognitive functioning. Invited address at the annual meeting of the American Educational Research Association, San Francisco, California.

Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. Educational Psychologist, 28(2), 117-148.

Bandura, A., & Cervone, D. (1983). Self-evaluation and self-efficacy mechanisms governing the motivational effects of goals. Journal of Personality and Social Psychology, 50, 492-501.

Bennis, W.G., Benne, K.D., & Chin, R. (1969). The planning of change. New York: Holt, Rinehart and Winston.

Benz, C., Bradley, L, Alderman, M., & Flowers, M. (1992). Personal teaching efficacy: Developmental relationships in education. Journal of Educational Research, 85(5), 274-279.

Berry, B., & Ginsberg, R. (1991). Effective schools and teacher professionalism: Educational policy at the crossroads. In J. Bliss, W. Firestone, & C. Richards (Eds.), Rethinking effective schools: Research and practice. Englewood Cliffs, NJ: Prentice-Hall.

Bidwell, C.E. (1965). The school as a formal organization. In J.G. Marsh (Ed.), Handbook of organizations, Chicago: Rand McNally.

Bossert, S.T. (1988). School effects. In N.J. Boyan (Ed.), Handbook of research on educational administration, New York: Longman.

Brandt, R. (1992). On building learning communities: A conversation with Hank Levin. Educational Leadership, 50(1), 19-23.

Brookover, W., & Erickson, E. (1975). Sociology of education. Homewood, Illinois: Dorsey Press.

Brookover, W.B., & Lezotte, L.W. (1979). Changes in school characteristics coincident with changes in school achievement. Michigan State University Institute for Research on Teaching Occasional Paper No. 17, East Lansing, MI. ED 181005.

Brown, R. (1965). Organizational climate of elementary schools. Research Monograph Number 2. Minneapolis: Educational Research and Development Council.

Carnegie Forum on Education and the Economy (1986). A nation prepared: Teachers for the 21st century. New York: Carnegie Corporation.

Carver, F.D., & Sergiovanni, T.J. (1969). Notes on the OCDQ. Journal of Educational Administration, 7, 71-81.

Chauvin, S.W. (1992). An exploration of principal change facilitator style, bureaucratic and professional orientations, and teacher receptivity to change. Unpublished doctoral dissertation, Louisiana State University.

Chavez, R.C. (1984). The use of high inference measures to study classroom climates: A review. Review of Educational Research, 54, 237-261.

Claudet, J.G. (1993). An exploration of the organizational structure of instructional supervision. Unpublished doctoral dissertation, Louisiana State University.

Coch, L., & French, J.R.P., Jr. (1948). Overcoming resistance to change. Human Relations, 1, 512-532.

Cohen, D.K., & Ball, D.L. (1990). Relations between policy and practice: A commentary. Educational Evaluation and Policy Analysis, 12(3), 249-256.

Coleman, J.S., et al. (1966). Equality of educational opportunity. National Center for Education Statistics. Washington, D.C.: Office of Education, U.S. Department of Health, Education and Welfare.

Corbett, H.D., Dawson, J.A., & Firestone (1984). School context and school change: Implications for effective planning. New York: Teachers College Press.

Corbett, H.D., Firestone, W.A., & Rossman, G.B. (1987). Resistance to planned change and the sacred in school cultures. Educational Administration Quarterly, 23(4), 36-59.

Coughlan, R.J., & Cooke, R.A. (1974). Work attitudes. In H.J. Walberg (Ed.), Evaluating educational performance: A Sourcebook of methods, instruments and examples. Berkeley, CA: McCutchan.

Crisafulli, D.A. (1982). The relationship between teachers' receptivity to change and the organizational school climate. Doctoral dissertation, George Peabody College for Teachers, Vanderbilt University, Dissertation Abstracts International, 44, 381A.

Cuban, L. (1988). Why do some reforms persist? Educational Administration Quarterly, 23, 329-335.

Cuban, L. (1990). Reforming again, again, and again. Educational Researcher, 19(1), 3-13.

Darling-Hammond, L. (1988). Accountability and teacher professionalism. American Educator, 12(4), 8-13.

Darling-Hammond, L. (1990). Instructional policy into practice: "The power of the bottom over the top." Educational Evaluation and Policy Analysis, 12(3), 233-241.

Darling-Hammond, L., & Goodwin, A.L. (1993). Progress toward professionalism in teaching. In G. Cawelti (Ed.), Challenges and achievements of american education. Alexandria, Va: Association for Supervision and Curriculum Development.

Deal, T. (1990). Reframing reform. Educational Leadership, 47(8), 6-12.

Dembo, M. & Gibson, S. (1984). Teachers' sense of self efficacy: An important factor in school improvement. The Elementary School Journal, 86, 173-184.

Durkheim, E. (1965). The elementary forms of religious life. New York: Free Press.

Edmonds, R. (1979). Effective schools for the urban poor. Educational Leadership, 37(1), 15-24.

Edmonds, R. (1982). Programs of school improvement: An overview. Educational Leadership, 40(3), 4-12.

Eliade, M. (1959). The sacred and the profane. New York: Harcourt, Brace and World.

Ellett, C.D. (1989). Conceptualizing the study of learning environments. In B. Fraser (Ed.), The study of learning environments: Volume 1, Research monograph of the Study of Learning Environments Special Interest Group of the American Educational Research Association. Perth, Western Australia: Curtin University of Technology.

Ellett, C.D., Claudet, J.C., Loup, K.S., Chauvin, S.W., Johnson, B.L., & Logan, C.S. (1994). School oganizational structures, environmental characteristics and organizational effectiveness: Syntheses of recent research in 443 schools and a proposed model of two-stage, two-level theory development. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

Ellett, C.D., Loup, K.S., & Chauvin, S.W. (1990). The System for Teaching and learning Assessment and Review (STAR). Extended Pilot Version. Baton Rouge, LA: Louisiana Teaching Internship and Statewide Teacher Evaluation Projects, College of Education, Louisiana State University.

Ellett, C.D., & Payne, D.A. (1975). The verification and validation of principal competencies and performance indicators: Assessment design -procedures - instrumentation - field test results, Volume 1 (Final Report). Athens, GA: Georgia Department of Education, Thomas County, GA, College of Education, University of Georgia.

Ellett, C.D., & Walberg, H.J. (1979). Principal competency, environment, and outcomes. In H.J. Walberg (Ed.), Educational environments and effects: Evaluation, policy, and productivity. Berkeley, CA: McCutchan.

Elmore, R.F. (1987). Reform and the culture of authority in schools. Educational Administrative Quarterly, 23, 60-78.

Emmer, E.T.,& Hickman, J. (1991). Teacher efficacy in classroom management and discipline. Educational and Psychological Measurement, 51, 755-765.

Erickson, F. (1987). Conceptions of school culture: An overvies. Educational Administration Quarterly, 23(4), 11-24.

Etizoni, A. (1964). Modern Organizations. Englewood Cliffs, NJ: Prentice-Hall.

Firestone, W.A., & Corbett, H.D. (1988). Planned organizational change. In N.J. Boyan (Ed.), Handbook of research on educational administration. New York: Longman.

Firestone, W.A. & Wilson, B.L. (1985, Spring). Using bureaucratic and cultural linkages to improve instruction: The principal's contribution. Educational Administration Quarterly, 21(2), 7-30.

Fisher, D..L., & Fraser, B.J. (1981). Validity and the use of My Class Inventory. Science Education, 65 145-156.

Fisher, D.L., & Fraser, B.J. (1991). Incorporating learning environment ideas into teacher education: An Australian perspective. The study of learning environments: Volume 6, Research monograph of the Study of Learning Environments Special Interest Group of the American Educational Research Association, Launceston, Tasmania, Australia: University of Tasmania at Launceston.

Fraser, B.J. (1978). Environmental factor affecting attitude toward different sources of scientific information. Journal of Research in Science Teaching, 15, 491-497.

Fraser, B.J. (1980). Criterion validity of individualized classroom environment questionnaire. Report to Education Research and Development Committee, Canberra. (ERIC ED 214 961).

Fraser, B.J. (1981). Learning environment in curriculum evaluation: A review. Evaluation in Education Series. Oxford: Pergamon.

Fraser, B.J. (1985). Individualized Classroom Environment Questionnaire. Melbourne, Australia: Australian Council for Educational Research.

Fraser, B.J. (1986). Classroom environment. London: Croon Helm.

Fraser, B.J. (1989). Twenty years on classroom environment work: Progress and prospect. Journal of Curriculum Studies, 21, 307-327.

Fraser, B.J., Anderson, G.J., & Walberg, H.J. (1982). Assessment of learning environments: Manual for Learning Environment Inventory (LEI) and My Class Inventory (MCI). Third Version. Perth, Western Australia: Western Australian Institute of Technology.

Fraser, B.J., & Deer, C.E. (1983). Improving classrooms through use of information about learning environment. Curriculum Perspectives, 3(2), 41-46.

Fraser, B.J., Docker, J.D., & Fisher, D.L. (1989). Assessing and improving school climate. Evaluation and Research in Education, 2, 109-122.

Fraser, B.J., & Fisher, D.L. (1983). Predicting students' outcomes from their perceptions of classroom psychosocial environment. American Educational Research Journal, 19, 498-518.

Fraser, B.J., & Rentoul, A.J. (1980). Person-environment fit in open classrooms. Journal of Educational Research, 28, 159-167.

Fraser, B.J., Seddon, T., & Eagleston, J. (1982). Use of student perceptions in facilitating improvement in classroom environment. Australian Journal of Teacher Education, 7, 31-42.

Fraser, B.J., & Walberg, H.J. (Eds.) (1991). Educational environments: Evaluation, antecedents and consequences. Oxford: Pergamon Press.

Fullan, M. (1994). Coordinating top-down and bottom-up strategies for educational reform. In R. Elmore and S. Furman (Eds.), The governance of curriculum. Alexandria, VA: Association for Supervision and Curriculum Development.

Fullan, M. (1993). Change forces: Probing the depths of educational reform. New York, NY: The Falmer Press.

Fullan, M. (1993). Innovation, reform and restructuring strategies. In G. Cawelti, (Ed.) Challenges and achievements of American education. Alexandria, VA: Association for Supervision and Curriculum Development.

Fullan, M. (1990). Staff development, innovation, and institutional development. In B.Joyce (Ed.), Changing school culture through staff development, (pp. 3-25). Alexandria, VA: Association for Supervision and Curriculum Development.

Fullan, M., Rolheiser-Bennett, C., & Bennett, B. (1989). Linking classroom and school improvement. Paper presented at the American Educational Research Association Annual Meeting.

Fullan, M., & Stiegelbauer, S. (1991). The new meaning of educational change. New York: Teachers College Press.

Fuller, B., Wild, K., Rapoport, R., & Dornbusch, S. M. (1982). The organizational context of individual efficacy. Review of Educational Research, 52(1), 7-30.

Hall, G.E., & Hord, S.M. (1987). Change in schools: Facilitating the process. New York: State University of New York Press.

Hall, G.E., & Loucks, S.F. (1978). Innovation configurations: Analyzing the adaptations of innovations. Austin: University of Texas at Austin, Research and Development Center for Teacher Education.

Glickman, C.D. (1987). Good and/or effective schools: What do we want? Kappan, 68(8), 622-624.

Glickman, C. (1992). Renewing America's schools. San Francisco, CA: Jossey-Bass.

General Accounting Office. (1989). Effective schools programs: Their extent and characteristics. (GAO Publication No. HRD-89-132BR). Washington, DC: U.S. Government Printing Office.

Getzels, J.W., & Guba, E.G. (1957). Social behavior and the administrative process. The School Review, 65, 423-441.

Giacquinta, J.B. (1973). The process of organizational change in schools. In F.B. Kerlinger (Ed.), Review of Research in Education, 1. 178-208.

Gibson, S., & Dembo, M. (1984). Teacher efficacy: A construct validation. Journal of Educational Psychology, 76(4), 569-582.

Glickman, C.D. (1992). The essence of school renewal: The prose has begun. Educational Leadership, 50(1), 24-27.

Good, T.L., & Brophy, J.E. (1986). School effects. In M.C. Wittrock (Ed.), Handbook of research on teaching, 3rd edition (pp. 570-602). New York: McMillan.

Goodlad, J.I. (1990) Teachers for our nation's schools. San Francisco: Jossey-Bass.

Guthre, E.R. (1935). The psychology of learning. New York: Harper.

Haertel, G.D., Walberg, H.J., & Haertel, E.H. (1981). Socio-psychological environments and learning: A quantitative synthesis. British Educational Research Journal, 7, 27-36.

Halpin, A.W. (1956). The leader behavior of school superintendents. Columbus, OH: College of Education, Ohio State University.

Halpin, A.W. (1966). Theory and research in administration. New York: Macmillan.

Halpin, A.W. & Croft, D.B. (1963). Organizational Climate Descriptive Questionnaire, (OCDQ). From A.W. Halpin & D.B. Croft, The organizational climate of schools. Chicago: Midwest Administration Center, University of Chicago, pp. 122-24.

Hanson, M.E. (1979). Educational administration and organizational behavior. First Edition. Needham Heights, Mass: Allyn and Bacon.

Hempill, J., & Coons, A. (1950). Leadership Behavior Description Questionnaire (LBDQ). Columbus, OH: Personnel Research Board, Ohio State University.

Hennigar, J.W. (1979). A research study of relationships between the perceived managerial style of selected middle management public school administrators and their perceived receptivity to change. Ed.D. doctoral dissertation, George Peabody College for Teachers, Vanderbilt University.

Hersey, P., & Balanchard, K. (1977). Management of organizational behavior: Utilizing human resources. Third Edition. Englewood Cliffs, NJ: Prentice-Hall.

Hoy, W.K., & Ferguson, J. (1985). A theoretical framework and exploration of organizational effectiveness of schools. Educational Administration Quarterly, 21(2), 117-134.

Hoy, W.K., & Miskel, C. (1987). Educational administration: Theory, research, and practice. Third edition. New York: Random House.

Hoy, W.K., & Miskel, C. (1991). Educational administration: Theory, research, and practice. Fourth edition. New York: McGraw-Hill.

Hoy, W., Tarter, C., & Bliss, J. (1990). Organizational climate, school health, and effectiveness: A comparative analysis. Educational Administration Quarterly, 26(3), 260-279.

Huberman, M. (1993). The model of the independent artisan in teachers' professional relations, in J. Little and M. McLaughlin (Eds.), Teachers' Work. Stanford, CA: Center for Research on the Context of Secondary School Teaching.

Jenks, C., Smith, M., Acland, H., Bane, M., Cohen, D., Ginter, H., Heyns, B., & Michelson, S. (1972). Inequality: A reassessment of the effect of the family and schooling in America, New York: Basic Books.

Johnson, B.L. (1991). School centralization and organizational effectiveness: The role of teacher alienation. Unpublished doctoral dissertation, Louisiana State University.

Kaslow, C. & Giacquinta, J. (1974). Faculty receptivity to organizational change. Paper presented at the annual meeting of the American Educational Research Association, Chicago, Illinois. ED 090847 (ERIC microforms).

Kelly, G. (1955). The psychology of personal constructs. New York: Norton.

Kuntz, D.,& Hoy, W. (1976). Leader behavior of principals and the professional zone of acceptance of teachers. Educational Administration Quarterly, 12: 49-64.

Latham, G., & Locke, E. (1986). Goal setting. In E. Locke (Ed.), Generalizing from laboratory to field settings. Lexington, MA: Heath.

Lawrence, R. (1954). How to deal with resistance to change. Harvard Business Review,32(3), 49-57.

Lawson, R., & Ventriss, C. (1992). Organizational change: The role of organizational culture and organizational learning. The Psychological Record, 42, 205-219.

Lewin, K. (1947). Frontiers in group dynamics. Human Relations, 1, 5-41.

Lezotte, L. (1990). Lessons Learned. In B.O. Taylor (Ed.), Case studies in effective schools research. Madison, WI: The National Center for Effective Schools Research.

Licata, J.W., & Johnson, B.L. (1985). Research on environmental robustness: A review and synthesis. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, California.

Lieberman, A. (1988). On building a professional culture in schools. New York: Teachers College Press.

Lieberman, A., Darling-Hammond, L., & Zuckerman, D. (1991). Early lessons in restructuring schools. New York: Columbia University, National Center for Restructuring Education, Schools, and Teaching.

Lieberman, A., & Miller, L. (1984). Teachers, their world and their work: Implications for school improvement. Alexandria, Virginia: Association for Supervision and Curriculum Development.

Little, J.W., & McLaughlin, M. (1992). Cultures and contexts of teaching. New York: Teachers College Press.

Locke,E., Shaw, K., Saari, L., & Latham, G. (1981). Goal setting and task performance: 1969-1980. Psychological Bulletin, 90, 125-152.

Logan, C.S. (1990). An exploration of the "paradoxical" view of coupling structure and school effectiveness. Unpublished doctoral dissertation, Louisiana State University.

Loup, K.S., & Ellett, C.D. (1993). The teacher self and organizational efficacy assessment (TSOEA). Baton Rouge, LA: Louisiana State University.

Loup, K.S., Ellett, C.D., & Hill, F. (1993). The professional learning environment inventory (PLEI). Baton Rouge, LA: Louisiana State University.

McLaughlin, M. (1990). Enabling professional development: What have we learned? In A.Lieberman and L. Miller (Eds.), Staff development: New demands, new realities, new perspectives. New York: Teachers College Press.

McLaughlin, M., & Pfeiffer, R. (1988). Teacher evaluation: Improvement, accountability and effective learning. New York: Teachers College Press.

Medley, D.M., & Mitzel, H.E. (1958). A technique for measuring classroom behavior. Journal of Educational Psychology, 49, 86-92.

Mento, A., Steel, R., & Karren, R. (1987). A meta-analytic study of the effects of goal setting on task performance. Organizational Behavior and Human Decision Processes, 39, 52-83.

Messick, S. (1988). Validity. In R.L. Linn (Ed.), Educational Measurement (3rd edition). New York: McMillan.

Mischel, W. (1971). Introduction to personality. New York: Holt, Rinehart and Winston.

Miskel, C., Boom, S., & McDonald, D. (1980). Structural coupling, expectancy climate, and learning strategies intervention effectiveness: A pilot study to establish the reliability and validity estimates of the measurement system. Final report for the Learning Disabilities Institute, University of Kansas.

Miskel, C., Fevurly, R., & Stewart, J.W. (1979). Organizational structures and processes, perceived school effectiveness, loyalty, and job satisfaction. Educational Administration Quarterly, 15(3), 97-118.

Miskel, C., & Ogawa, R. (1988). Work motivation, job satisfaction, and climate. In N.J. Boyan (Ed.), Handbook of research on educational administration. New York: Longman.

Moos, R. H. (1974). The social climate scales: An overview.

Moos, R.H. (1979). Evaluating educational environments: Procedures, measures, findings and policy implications. San Francisco, CA: Jossey-Bass.

Moos, R.H. (1974). The social climate scales: An overview. Palo Alto, CA: Consulting Psychologists Press.

Moos, R.H. (1981). Manual for Work Environment Scale. Palo Alto, CA: Consulting Psychologists Press.

Moos, R., & Trickett, E. (1974). Classroom Environment Scale (CES) manual. Palo Alto, CA: Consulting Psychologists Press.

Morris, B.S. (1986). Testing a model of school holding power: Teacher perceptions of the work environment, robustness, personal characteristics, and alienation behavior. Unpublished doctoral dissertation, Louisiana State University.

Mosteller, F., & Moynihan, D.P. (1972). On equality of educational opportunity. New York: Vintage.

Mott, P.E. (1972). The characteristics of effective organizations. New York: Harper & Row.

Murphy, J. (1989). Educational reform in the 1980s: Explaining some surprising success. Educational Evaluation and Policy Analysis, 11(3), 209-221.

Murphy, J. (1990). The educational reform movement of the 1980s: A comprehensive analysis. In J. Murphy (Ed.), The educational reform movement of the 1980s. Berkelely, CA: McCutchan.

Nais, J., Southworth, & Campbell, P. (1992). Whole school curriculum development in the primary school. Philadelphia : Falmer Press.

Nakamura, R.T., & Smallwood, F. (1980). The politics of policy implementation. New York: St. Martin's Press.

National Commission on Excellence in Education. (1983). A nation at risk. Washington, DC: Author.

Offermand, , L.R., & Gowing, M. (1990). Organizations of the future: Changes and challenges. American Psychologist, 45, 95-108.

Ouchi, W.G. (1981). Theory Z. Reading, MA: Addison-Wesley.

Pace, C.R., & Stern, G.G. (1958). An approach to the measurement of psychological characteristics of college environments. Journal of Educational Psychology, 49, 269-277.

Parsons, T. (1960). Structure and process in modern society. New York: Free Press.

Parsons, T., Bales, R., & Shils, E. (1953). Working papers in the theory of action. New York: McMillan.

Patton, M.Q. (1990). Qualitative evaluation methods. Beverly Hills, CA: Sage.

Peters, T.J., & Waterman, R.H., Jr. (1982). In search of excellence. New York: Harper & Row.

Purkey, S., & Smith, M. (1983). Effective schools: A review. Elementary School Journal, 83(4), 427-452.

Ralph, J., & Fennessey, J. (1983). Science or reform: Some questions about the effective schools model. Phi Delta Kappan, 64(10), 689-694.

Raudenbush, S., Rowan, B., & Cheong, Y. (1992). Self-perceived efficacy of high school teachers. Sociology of Education, 65, 150-167.

Rentoul, A., & Fraser, B.J. (1979). Conceptualization of enquiry-based or open classroom learning environments. Journal of Curriculum Studies, 11, 233-245.

Rentoul, A., & Fraser, B.J. (1983). Development of a school-level environment questionnaire. Journal of Educational Administration, 21, 21-29.

Richards, C. (1991). The meaning and measure of school effectiveness. In J. Bliss, W. Firestone, & C. Richards, Rethinking effective schools: Research and practice. Englewood Cliffs, NJ: Prentice Hall.

Rogers, E., & Shoemaker, F. (1971). Communication of innovations: A cross-cultural approach. New York: Free Press.

Rosenholtz, S.J. (1989). Teachers' workplace: The social organization of schools. New York: Longman.

Rossman, G., Corbett, H., & Firestone, W. (1988). Change and effectiveness in schools: A cultural perspective. Albany, NY: State University of New York Press.

Rotter, J.B. (1954). Social learning and clinical psychology. Englewood Cliffs, NJ: Prentice-Hall.

Rowen, B., Bossert, S.T., & Dwyer, D.C. (1983). Research on effective schools: A cautionary note. Educational Researcher, 12(4), 24-31.

Rutter, M., Maughan, B., Mortimore, P., Ouston, J., & Smith, (1979). Fifteen thousand hours: Secondary schools and their effects on children, Cambirdge, MA: Harvard University Press.

Sarason, S.B. (1971). The culture of the school and the problem of change. Boston: Allyn and Bacon.

Sarason, S.B. (1990). The predictable of educational reform. San Francisco: Jossey-Bass.

SAS Institute, Inc. (Author). (1985). SAS User's Guide: Statistics, Version 5 Edition. Cary, NC.

Scheerens, J., & Creemers, B. (1989). Towards a more comprehensive conceptualization of school effectiveness. In B. Creemers, T. Peters, & D. Reynolds (Eds.), School effectiveness and school improvement: Proceedings from the Second International Congress for School Effectiveness. Amsterdam: Swets & Zeitlinger.

Scheerens, J., & Creemers, B. (1990). Conceptualizing school effectiveness. International Journal of Educational Research, 13(7), 789-799.

Sergiovanni, T.J. (1991). The principalship: A reflective practice perspective. Needham Heights, Massachusetts: Allyn and Bacon.

Shulman, L. S. (1987). Knowledge and teaching: Foundations of the new reform. Harvard Educational Review, 57: 1-22.

Skinner, B.F. (1953). Science and human behavior. New York: MacMillan.

Skinner, B.F. (1960). Pigeons in a pelican. American Psychologist, 15, 28-37.

SPSS Inc. (Author). (1986). SPSS X User's Guide (Second Edition). New York, McGraw-Hill.

Stern, G.G. (1970). People in context: Measuring person-environment congruence in education and industry. New York: Wiley.

Stogdill, R.M. (1963). Manual for the Leader Behavior Description Questionnaire (LBDQ), Form XII. Columbus, OH: Bureau of Business Research, Ohio State University.

Sykes, G. (1990). Fostering teacher professionalism in schools. In Elmore and Associates (Ed), Restructuring Schools: The next generation of educational reform. San Francisco, CA: Jossey-Bass.

Tagiuri, R. (1968). The concept of organizational climate. In R. Tagiuri & G. Litwin (Eds.), Organizational climate: Exploration of a concept. Boston, MA: Division of Research, Graduate School of Business Administration, Harvard University.

Talmage, H., Pascarella, E., & Ford, S. (1984). The influence of cooperative learning strategies on teacher practices, student perceptions of the learning environment, and academic achievement. American Educational Research Journal, 21, 163-179.

Teddlie, C., Kirby, P.C., & Stringfield, S. (1989). Effective versus ineffective schools: Observable differences in the classroom. American Journal of Education, 97(3), 221-236.

Teddlie, C., & Stringfield, S. (1993). Schools make a difference: Lessons learned from a 10-year study of school effects. New York: Teachers College Press.

Thorndike, E.L. (1932). The fundamentals of learning. New York: Teachers College Press.

Treagust, D.F. & Fraser, B.J. (1986). Validation and application of the College and University Classroom Environment Inventory (CUCEI). Paper presented at the annual meeting of the American Educational Research Association, San Francisco.

Trickett, E. (1978). Toward a social-ecological conception of adolescent socialization: Normative data on contrasting types of public school classrooms. Child Development, 49, 408-414.

Trickett, E., & Moos, R. (1973). Social environment of junior high and high school classrooms. Journal of Educational Psychology. 65, 93-102.

U.S. Department of Education. (1991). America 200: An education strategy: Sourcebook. Washington, DC: Author.

Wang, M., Haertel, G., & Walberg, H. (1993). Toward a knowledge base for school learning. Review of Educational Research, 63(3), 249-294.

Walberg, H.J. (Ed.) (1979). Educational environments and effects: Evaluation, policy, and productivity. Berkeley, CA: McCutchan.

Watkins, J.F. (1968). The OCDQ-An application and some implications. Educational Administration Quarterly, 4, 49-60.

Waugh, R.F., & Punch, K.F. (1987). Teacher receptivity to systemwide change in the implementation stage. Review of Educational Research, 57, 237-254.

Weber, G. (1971). Inner city children can be taught to read: Four successful schools. Washington, DC: Council for Basic Education.

Welch, W.W., & Walberg, H.J. (1972). A national experiment in curriculum evaluation. American Educational Research Journal, 9, 373-383.

Willower, D.J., Eidell, T.L., & Hoy, W.K. (1967). The school and pupil control ideology. The Pennsylvania State University Studies No. 24. University Park, PA: The Pennsylvania State University.

Willower, D.J., & Licata, J. (1975). Environmental robustness and school structure. Planning and Changing, 6, 120-127.

Wimpelberg, R.K., Teddlie, C., & Stringfield, S. (1989). Sensitivity to context: The past and future of effective schools research. Educational Administration Quarterly, 25(1), 82-107.

Wood, R., & Bandura, A. (1989). Social cognitive theory of organizational management. Academy of Management Review, 14, 361-384.

Woolfolk, A., & Hoy, W. (1990). Prospective teachers' sense of efficacy and beliefs about control. Journal of Educational Psychology, 82, 81-91.

Zander, A. (1962). Resistance to change: Its analysis and prevention. In W. G. Bennis, K.D. Benne & R. Chin (Eds.), The planning of change. New York: Free Press.

APPENDIX A:

INSTRUMENT SET USED FOR DATA COLLECTION AND ITEM LOCATION INDICES FOR ORIGINAL SUBSCALES OF THE PLEI, TSOEA, AND RCI

TEACHER QUESTIONNAIRE

DEMOGRAPHIC INFORMATION

DIRECTIONS: For each item, please use a #2 pencil and completely fill in the circle that corresponds with your response.

1. Gender: Female Male

2. Ethnicity: Black White Hispanic Asian Other _____

3. Age: 20-24 25-29 30-39 40-49 50-59 60-over

4. Type of school in which you are currently working:
   Elementary (grades K-5)
   Middle (grades 6-8)
   Secondary (grades 9-11)
   Other_____

5. Type of teaching situation in which you are currently teaching:
   Regular Education Classroom
   Regular Education Remedial (e.g.,Chapter 1)
   Special Education
   Other_____

6. Content area in which you primarily teach:
   Basic skills/elementary
   Special Education
   Vocational Education
   Reading
   English/Language Arts
   Mathematics
   Social Studies
   Science
   Art/Music
   Physical Education/Recreation
   Other (please specify)_____

7. Number of years you have been a teacher in this school (including 1992-1993 school year):
   TENS
   ONES

8. Total number of years as a professional educator (including 1992-1993):
   TENS
   ONES

9. How many years have you worked with your current principal?
   TENS
   ONES

10. Highest degree completed:
    Bachelor
    Master
    Master + 30/Specialist
    Doctorate (Ph.D. or Ed.D.)

PART I

DIRECTIONS: The items below describe factors/events/conditions in your school that can contribute to or enhance opportunities for your LEARNING as a professional. Use the scale provided below to rate each item. Darken the circle to the right of the factor/event/condition that corresponds to your rating. Use a #2 pencil to complete the form and remember to darken the circle, do not check, cross through or circle the response.

SCALE:
1 = factor/event/condition does not occur/exist
2 = factor/event/condition sometimes occurs/exists
3 = factor/event/condition usually occurs/exists
4 = factor/event/condition almost always occurs/exists

FACTOR/EVENT/CONDITION	FREQUENCY OF OCCURRENCE/EXISTENCE
1. Open discussion of important teaching and learning issues in faculty meetings	
2. Collaboration between teachers and administrators regarding plans of action for teaching and learning	
3. Inservice meetings in which teachers are involved in planning or serve as presenters	

SCALE: 1 = factor/event/condition does not occur/exist
2 = factor/event/condition sometimes occurs/exists
3 = factor/event/condition usually occurs/exists
4 = factor/event/condition almost always occurs/exists

FACTOR/EVENT/CONDITION	FREQUENCY OF OCCURRENCE/EXISTENCE
4. Small group instructional meetings initiated by teachers	
5. Opportunities for teachers to observe in other teachers' classrooms	
6. Opportunities for participation in professional development activities	
7. Opportunities for mentoring new/beginning teachers	
8. Opportunities for administrators to observe in classrooms	
9. Professional feedback conferences	
10. Development of personal professional growth plans	
11. Administrators make suggestions for improving teaching and learning	
12. Opportunities for self reflection to improve teaching and learning	
13. Oppotunities for informal idea exchanges between teachers and administrators about improving teaching and learning	
14. Opportunities for receiving incentives/rewards for developing creative or innovative activities, programs, etc.	
15. Opportunities for cooperative exchanges with other schools (e.g., cross-visiting, teacher networking, etc.)	
16. Opportunities for use of professional resources (e.g., teacher experts, guest speakers, etc.)	
17. Opportunities for teachers to participate in decisions concerning hiring of professional staff	
18. Participation in professional activities (e.g., attending conferences, workshops, grant writing, etc.)	
19. Participation on school committees	
20. Participation in district committee activities involving the larger school community	
21. Opportunities to read current periodicals (e.g., education magizines, journals, etc.)	
22. Formal opportunities (specific time set aside) to work/ plan collaboratively with other teachers	
23. Teachers provide suggestions to each other for improving teaching and learning	
24. Teachers make sacrifices to accomplish the vision of what the school ought to be	
25. Teachers hold high expectations for student learning	
26. Administrators hold high expectations for student learning	
27. School activities focus on the quality of teaching and learning for students	
28. Teachers are allowed to use the teaching methods that work best for students	
29. Teachers frequently communicate with one another about teaching and learning	

SCALE: 1 = factor/event/condition does not occur/exist
2 = factor/event/condition sometimes occurs/exists
3 = factor/event/condition usually occurs/exists
4 = factor/event/condition almost always occurs/exists

FACTOR/EVENT/CONDITION	FREQUENCY OF OCCURRENCE/EXISTENCE
30. Parents are utilized as outside resources	
31. Teachers have the freedom to use their own judgement in establishing the pattern of daily classroom activities	
32. District resources are available to meet school needs	
33. Administrators emphasize professionalism	
34. What is taught is determined by district guidelines	
35. Teachers emphasize professionalism	
36. Administrators and teachers cooperatively participate in developing school policies	
37. Administrators and teachers discuss ways to accomplish or adjust school goals	
38. Efforts are exerted to maintain good school-community relations	
39. Administrators are open-minded/perceptive to teacher ideas	
40. Teachers are open and receptive to new ideas	
41. Teachers make decisions concerning their own class(es)	
42. District teaching and learning guidelines are in agreement with school needs	

PART II

DIRECTIONS: This part of the survey requests that you consider four goals that teachers usually attempt to accomplish in their roles as professionals in schools. These four goals are:

GOAL 1: TO ENHANCE THE LEARNING OF STUDENTS
GOAL 2: TO INCREASE THE INVOLVEMENT OF PARENTS IN THEIR CHILDREN'S LEARNING
GOAL 3: TO ESTABLISH AND COMMUNICATE A VISION OF WHAT THE SCHOOL OUGHT TO ACCOMPLISH
GOAL 4: TO ESTABLISH PROFESSIONAL RELATIONSHIPS WITH ADMINISTRATORS AND OTHER TEACHERS

Three key questions are asked about each of the four goals in the sections below. First, read the key question, then consider each of the four goals listed, one at a time. Next, decide how you would respond to the question as an individual teacher; then decide how most teachers in your school would respond. Use the scale provided and darken the circle that corresponds to your answer to the key question for each of the four goals. Repeat this procedure for each key question.

KEY QUESTION 1 : How much energy/effort is put forth in your school to accomplish each goal?

	Little or No Effort	Some Effort	A Large Amount of Effort
a. Goal 1: To enhance the learning of students			
My Effort			
Efforts of Other Teachers			

KEY QUESTION 1 : How much energy/effort is put forth in your school to accomplish each goal?

	Little or No Effort	Some Effort	A Large Amount of Effort
b. Goal 2: To increase the involement of parents in their children's learning			
My Effort			
Efforts of Other Teachers			
c. Goal 3: To establish and communicate a vision of what the school ought to accomplish			
My Effort			
Efforts of Other Teachers			
d: Goal 4: to establish professional relationships with administrators and other teachers			
My Effort			
Efforts of Other Teachers			

KEY QUESTION 2 : If there are difficult or uncertain obstacles to overcome in accomplishing a goal, how much persistence/perseverance would be put forth to accomplish each goal?

	Little or No Persistence	Some Persistence	A Large Amount Persistence
a. Goal 1: To enhance the learning of students			
My Persistence			
Persistence of Other Teachers			
b. Goal 2: To increase the involement of parents in their children's learning			
My Persistence			
Persistence of Other Teachers			
c. Goal 3: To establish and communicate a vision of what the school ought to accomplish			
My Persistence			
Persistence of Other Teachers			
d: Goal 4: to establish professional relationships with administrators and other teachers			
My Persistence			
Persistence of Other Teachers			

KEY QUESTION 3 : To what extent would failure to accomplish a goal result in decreasing effort to accomplish future goals?

	Little or No Decrease in Effort	Some Decrease in Effort	A Large Amount Decrease in Effort
a. Goal 1: To enhance the learning of students			
My Effort			
Efforts of Other Teachers			
b. Goal 2: To increase the involement of parents in their children's learning			
My Effort			
Efforts of Other Teachers			
c. Goal 3: To establish and communicate a vision of what the school ought to accomplish			
My Effort			
Efforts of Other Teachers			
d: Goal 4: to establish professional relationships with administrators and other teachers			
My Effort			
Efforts of Other Teachers			

PART III

DIRECTIONS: In responding to each of the following items, imagine you are at a faculty meeting in your school. One of your colleagues makes a suggestion that a change be made which would include your school or school district. Each item that follows represents a suggested change to which you must make a decision regarding your support or lack of support. Using the scale of 1 - 5 shown below, please fill in the number which best reflects your views of the suggestions.

SCALE: 1 = I definitely would not support the suggestion. I am very much opposed to the idea and I am against such a change.
2 = I would not likely support the suggestion. The suggestion is not a good idea.
3 = It makes no difference one way or another. The idea is of such insignificance that I would not question it.
4 = I would probably support the suggestion. However, I would have to know more of the reasons behind the idea.
5 = I would support the suggestion. It is obviously a good idea and should be done.

1. Lengthen the school year to 200 student attendance days

2. Require teachers to be formally invloved in annual evaluation of other teachers in their schools

3. Involve parents, teachers, students, and administrators in a total needs assessment of the school system

4. Establish a school/district policy that requires teachers to rotate every three years to a different grade or subject area in which they are certified to teach

5. Establish a distrct policy that would lengthen the school day

6. Develop a positive action committee to curb school drop-outs

7. Remove walls in schools to develop an open classroom educational environment

8. Provide a "Teacher Effectiveness Training Program" for all teachers in the school system, regardless of prior teaching experience

9. Require inservice for teachers on the development of students' thinking skills in all curriculum areas

10. Provide for a Staff Development Committee to plan inservice programs for professional staff in the school

11. Offer a parent discussion group during the school day under the direction of a qualified school counselor

12. Establish a teacher committee responsible for making recommendations related to the expenditure of school/ district funds

13. Establish a school/district policy that requires teachers to assume full and sole responsibility for managing student discipline

14. Utilize standardized achievement test results as a sole criterion for high school graduation decisions

15. Allow parents to have the final decision in promotion/ retention of their children in grades K-12

16. Adopt a district policy that would reduce the class size and also proportionately reduce teacher salaries

17. Establish a procedure for evaluating teachers that is based on student achievement scores

18. Hold after school workshops for teachers in grade K-12 to identify students with special needs

PART IV

DIRECTIONS: These final eight questions are about your perceptions of your school's overall effectiveness. Every educator produces something during work. It may be a "product" or a "service". The following list of "products" and "services" are just a few of the things that result from schools:

Lesson Plans	Student Learning	Athletic Achievements
New Curricula	Community Projects	Teacher-Parent Meetings
Art and Music Programs	Instruction	

Please indicate your responses by filling in the appropriate bubble.

Of the various things produced by the people you know in your school, how much are they producing?
- Low Production
- Fairly Low
- Moderate
- High
- Very High Production

How good is the quality of the products or services produced by the people you know in your school?
- Poor Quality
- Low Quality
- Fair Quality
- Good Quality
- Excellent Quality

Do the people in your school get maximum output from the available resources (money, people, equipment, etc.)? That is, how efficiently do they do their work?
- Not Efficiently
- Not Very Efficiently
- Fairly Efficiently
- Very Efficiently
- Extremely Efficiently

How good a job is done by the people in your school in anticipating problems and preventing them from occurring or minimizing their effects?
- A Poor Job
- An Adequate Job
- A Fair Job
- A Very Good Job
- An Excellent Job

How informed are the people in your school about innovations that could affect the way they do their work?
- Uninformed
- Somewhat Informed
- Moderately Informed
- Informed
- Very Informed

When changes are made in methods, routines, or equipment, how quickly do the people in your school accept and adjust to the changes?
- Very Slowly
- Rather Slowly
- Fairly Rapidly
- Rapidly
- Immediately

How many of the people in your school readily accept and adjust to the changes?
- Few, If Any
- Less Than Half
- About Half
- Many More Than Half
- Almost Everyone

How good a job do the people in your school do in coping with emergencies and disruptions?
- A Poor Job
- An Adequate Job
- A Fair Job
- A Good Job
- An Excellent Job

Table A.1

Item Location Index for Original Subscales of the PLEI

PLEI Subscale	Item Number
Opportunities for Professional Learning (19)[a]	1, 2, 5, 6, 7, 8, 9, 10, 11, 12, 13, 18, 21, 22, 23, 29, 30, 36, 37,
Structural Elements (23)	3, 4, 14, 15, 16, 17, 19, 20, 24, 25, 26, 27, 28, 31, 32, 33, 34, 35, 38, 39, 40, 41, 42
Instrument Item Total (42)	

[a] Number of items on subscale

Table A.2

Item Location Index for Original Subscales of the TSOEA

TSOEA Subscale	Motivation Statement/Items/Key Questions
Teacher Self Efficacy (12)[a]	My Effort (4 items) Key Question 1 My Persistence (4 items) Key Question 2 My Effort (4 items) Key Question 3
Organizational Efficacy (12)	Efforts of Other Teachers (4 items) Key Question 1 Persistence of Other Teachers (4 items) Key Question 2 Efforts of Other Teachers (4 items) Key Question 3
Instrument Item Total (24)	

[a] Number of items on subscale

Table A.3

Item Location Index for Original Subscales of the Modified RCI

RCI Subscale	Item Number
Superficial/Behavioral Change (8)[a]	3, 6, 8, 9, 10, 11, 12, 18
Cultural/Normative Change (CNC)(10)	1, 2, 4, 5, 7, 13, 14, 15, 16, 17
Instrument Item Total (18)[b]	

[a] Number of items on subscale
[b] Items used constitute a subset of the factored version of the RCI (Chauvin, 1992)

APPENDIX B:

ITEM LOCATION INDICES FOR FACTORED SUBSCALES OF THE PLEI, TSOEA, AND RCI

Table B.1

Item Location Index for Factored Subscales of the PLEI

PLEI Subscale	Item Number
Opportunities for Professional Learning and Development (OPLD)(9)[a]	4, 5, 12, 14, 15, 16, 21, 22, 23
Teacher/Administrator Relations (TAR)(9)	1, 2, 8, 17, 18, 19, 36, 37, 39
Beliefs, Expectations, and Values (BEV)(6)	24, 25, 26, 27, 35, 40
Teacher Autonomy (TA)(3)	28, 31, 41
Instrument Item Total (27)	

[a] Number of items retained on subscale

Table B.2

Item Location Index for Factored Subscales of the TSOEA

TSOEA Subscale	Item Number
Teacher Perceptions of Self Efficacy (TPSE)(10)[a]	1, 3, 5, 6, 7, 9, 11, 13, 14, 15
Teacher Perceptions of Organizational Efficacy (TPOE)(8)	2, 4, 6, 8, 10, 12, 14, 16
Collective Perceptions of Efficacy (CPE)(8)	17, 18, 19, 20, 21, 22, 23, 24
Instrument Item Total (24)[b]	

[a] Number of items retained on subscale
[b] Items 6 and 14 are retained on both TPSE and TPOE subscales

Table B.3

Item Location Index for Factored Subscales of the RCI

RCI Subscale	Item Number
Superficial/Behavioral Change (SBC)(8)[a]	3, 6, 8, 9, 10, 11, 12, 18
Cultural/Normative Change (CNC)(10)	1, 2, 4, 5, 7, 13, 14, 15, 16, 17
Instrument Item Total (18)[b]	

[a] Number of items retained on subscale

[b] Items used constitute a subset of the factored version of the RCI used by Chauvin, 1992

APPENDIX C:

DESCRIPTIVE STATISTICAL TABLES

Table C.1

Profile of Sample by Personal and Professional Characteristics of Teachers (n=1041)

Characteristic	Frequency	Percent[a]
Gender		
Female	763	73.3
Male	247	24.7
Ethnicity		
Black	216	20.7
White	576	55.3
Hispanic	205	19.7
Asian	01	.1
Other	17	1.6
Age		
20-24	32	3.1
25-29	82	7.9
30-39	228	21.9
40-49	419	40.3
50-59	198	19.0
60-over	42	4.0

(table continues)

Characteristic	Frequency	Percent[a]
Type of school		
Elementary	381	36.6
Middle	296	28.4
Secondary	295	28.3
Other	54	1.4
Current teaching situation		
Regular education	772	69.4
Remedial regular	41	3.1
Special education	109	10.5
Other	133	12.8
Content primarily teaching		
Basic Skills/Elem	289	27.8
Special Education	56	5.4
Vocational Ed.	51	4.9
Reading	15	1.4
English/Lang Arts	123	11.8
Mathematics	92	8.8
Social Studies	77	7.4
Science	86	8.3
Art/Music	44	4.2
Ph.Ed/Recreation	23	2.2
Other	112	10.8
Years w/current principal		
1	293	30.0
2	223	21.9
3	126	12.1
4	84	8.1
5	59	5.7
6-9	118	14.7
10-14	62	5.1
15-20	43	4.2
20+	11	1.1

(table continues)

Characteristic	Frequency	Percent[a]
Total years teaching experience		
1	05	0.5
2	175	16.8
3	65	6.2
4	65	6.2
5	59	5.7
6-9	216	20.8
10-14	172	19.3
15-20	120	12.9
20+	126	12.1
Education level		
Bachelor	398	38.2
Master	401	38.5
Master +30/Spec.	117	11.2
Doctorate	20	1.9

[a] Percent of total group respondents

Table C.2

Demographic Characteristics of Participating Schools

School Level	SADA[a]	SES[b]	SIZE[c]	SACHR[d]	SACHM
Elementary (n=27)[e]	94.7	64.2	845	43	53
Middle (n=16)	94.3	62.7	1273	42	51
Secondary (n=10)	92.2	15.4	3049	__[f]	__

[a] expressed as a mean percentage of average daily attendance
[b] expressed as a mean percentage of students on free/reduced lunch programs
[c] expressed as the mean number of students enrolled
[d] expressed as a mean NCE score on SAT Reading/Math subtests
[e] number of participating schools
[f] achievement data was not available for secondary schools

Table C.3

Demographic Characteristics of Non-Participating Schools

School Level	SADA[a]	SES[b]	SIZE[c]	SACHR[d]	SACHM
Elementary (n=48)[e]	94.3	71.9	1184	41	51
Middle (n=14)	94.6	47.0	1202	45	53
Secondary (n=8)	92.4	18.46	2577	__[f]	__

[a] expressed as a mean percentage of average daily attendance
[b] expressed as a mean percentage of students on free/reduced lunch programs
[c] expressed as the mean number of students enrolled
[d] expressed as a mean NCE score on SAT Reading/Math subtests
[e] number of non-participating schools
[f] achievement data was not available for secondary schools

APPENDIX D:

DESCRIPTIVE STATISTICAL RESULTS FOR INSTRUMENT ITEMS

Table D.1

Summary of Descriptive Statistics for Each Item and Total Instrument of the PLEI for Teachers in All Schools (n=1041)[a]

Item	M[b]	SD
1	2.68	.95
2	2.74	.90
3	2.51	.86
4	2.21	.93
5	1.90	.90
6	2.92	.85
7	2.91	.93
8	3.33	.80
9	2.63	1.01
10	2.51	1.00
11	2.77	.91
12	2.63	.98
13	2.62	.97
14	2.24	.98
15	1.92	.90
16	2.68	.88
17	2.13	1.02
18	3.08	.84
19	3.32	.81
20	2.45	.96
21	2.88	.98
22	2.51	1.08

(table continues)

Item	M[a]	SD
23	2.63	.93
24	2.78	.94
25	3.07	.82
26	3.18	.83
27	2.91	.91
28	3.24	.81
29	2.88	.89
30	2.39	.89
31	3.30	.79
32	2.63	.88
33	3.32	.81
34	3.36	.72
35	3.09	.79
36	2.83	.92
37	2.90	.90
38	3.11	.81
39	2.93	.91
40	2.77	.77
41	3.20	.74
42	2.81	.82

[a] Item scores on the PLEI range from 1 (factor/event/condition does not occur/exist) to 4 (factor/event/condition almost always occurs/exists). High scores reflect a more professional school learning environment.

Table D.2

Summary of Descriptive Statistics for Each Item and Total Instrument of the TSOEA for Teachers in All Schools (n= 1035)

Item	M	SD
1[a]	4.72	.57
2	4.14	.85
3	3.92	1.01
4	3.72	.96
5	3.95	.96
6	3.71	.95
7	4.29	.83
8	3.85	.92
9[b]	4.53	.70
10	3.98	.90
11	3.89	1.02
12	3.70	1.00
13	3.93	.96
14	3.67	.97
15	4.16	.94
16	3.74	.99
17	2.29	1.34
18[c]	2.55	1.21
19	2.57	1.24
20	2.68	1.17

(table continues)

Item	M[a]	SD
21	2.48	1.21
22	2.60	1.13
23	2.53	1.29
24	2.67	1.20

[a] Scores for Items 1-8 on the TSOEA range from 1 (little/no effort) to 5 (a large amount of effort). High scores reflect perceptions of high self or organizational efficacy as it relates to effort.

[b] Scores for Items 9-16 on the TSOEA range from 1 (little/no persistence) to 5 (a large amount of persistence). High scores reflect perceptions of high self or organizational efficacy as it relates to persistence/perserverance.

[c] Items 17-24 are reverse scored. Scores for Items 17-24 on the TSOEA range from 1 (little/no decrease in effort) to 5 (a large amount of decrease in effort). High scores reflect perceptions of low self or organizational efficacy as it relates to effect of failure on decrease in effort.

Table D.3

Summary of Descriptive Statistics for Each Item and Total Instrument of the RCI for Teachers in All Schools (n=1035)

Item	M[a]	SD
1	2.51	1.47
2	2.40	1.38
3	4.17	1.03
4	2.38	1.44
5	1.72	1.15
6	4.30	1.03
7	1.50	1.01
8	3.66	1.31
9	3.94	1.11
10	3.98	1.02
11	3.99	1.04
12	4.07	1.00
13	2.24	1.41
14	1.89	1.19
15	1.62	1.01
16	1.74	1.23
17	1.68	1.02
18	3.16	1.34

[a] Item scores on the RCI range from 1 (total rejection) to 5 (total acceptance) High scores reflect a greater positive receptivity to change among teachers

Table D.4

Summary of Descriptive Statistics for Each Item and Total Instrument of the IPOE for Teachers in All Schools (n=1035)

Item	M[a]	SD
1	3.61	.87
2	3.94	.76
3	3.49	.83
4	3.32	1.04
5	3.35	1.06
6	2.98	.94
7	3.42	1.04
8	3.90	1.00

[a] Item scores on the IPOE range from 1 to 5. High scores reflect a greater perception of organizational effectiveness.

APPENDIX E:

TESTS OF COMMON METHOD VARIANCE

Table E.1

Summary of Within School Correlation Coefficients for the PLEI OPLD Subscale and the IPOE for All Schools

School	n[a]	OPLD/IPOE r[b]
School 1	23	.64**
School 2	40	.55**
School 3	44	.52**
School 4	31	.20
School 5	22	.59**
School 6	13	.34
School 7	19	.37
School 8	15	.51
School 9	16	.23
School 10	20	.16
School 11	28	.74**
School 12	30	.70**
School 13	14	.46
School 14	27	.37
School 15	16	.37
School 16	12	.22
School 17	14	.32
School 18	19	.85**
School 19	14	.55

(table continues)

School	n[a]	OPLD/IPOE r[b]
School 20	12	-.11
School 21	20	.56*
School 22	15	.75**
School 23	06	.75
School 24	19	.39
School 25	23	.66**
School 26	08	.60
School 27	16	.59*
School 28	16	.63**
School 29	17	.36
School 30	29	.54**
School 31	21	.51*
School 32	17	.42
School 33	06	.07
School 34	17	.56*
School 35	19	.77**
School 36	15	.43
School 37	19	.55**
School 38	25	.30
School 39	18	.59*
School 40	10	.78**

[a] Number of participating teachers in school
[b] Pearson product moment correlation coefficient
* $p<.05$
** $p<.01$

Table E.2

Summary of Within School Correlation Coefficients for the PLEI TAR Subscale and the IPOE for All Schools

School	n[a]	TAR/IPOE r[b]
School 1	23	.36*
School 2	40	.68**
School 3	44	.37**
School 4	31	.23
School 5	22	.69**
School 6	13	.49
School 7	19	.36
School 8	15	.44
School 9	16	.39
School 10	20	.12
School 11	28	.66**
School 12	30	.70**
School 13	14	.27
School 14	27	.37
School 15	16	.55*
School 16	12	.68**
School 17	14	.42
School 18	19	.74**
School 19	14	.72**

(table continues)

School	n[a]	TAR/IPOE r[b]
School 20	12	.17
School 21	20	.62**
School 22	15	.66**
School 23	06	.76
School 24	19	.43
School 25	23	.62**
School 26	08	.15
School 27	16	.32
School 28	16	.72**
School 29	17	.34
School 30	29	.57**
School 31	21	.78**
School 32	17	.22
School 33	06	.13
School 34	17	.15
School 35	19	.48*
School 36	15	.36
School 37	19	.31
School 38	25	.41
School 39	18	.46
School 40	10	.87**

[a] Number of participating teachers in school
[b] Pearson product moment correlation coefficient
* $p<.05$
** $p<.01$

Table E.3

Summary of Within School Correlation Coefficients for the PLEI BEV Subscale and the IPOE for All Schools

School	n[a]	BEV/IPOE r[b]
School 1	23	.34*
School 2	40	.31
School 3	44	.52**
School 4	31	.21
School 5	22	.76**
School 6	13	.30
School 7	19	.23
School 8	15	.07
School 9	16	.69**
School 10	20	.01
School 11	28	.66**
School 12	30	.76**
School 13	14	.61*
School 14	27	.41*
School 15	16	.53*
School 16	12	.80**
School 17	14	.48*
School 18	19	.48*
School 19	14	.31

(table continues)

School	n[a]	BEV/IPOE r[b]
School 20	12	-.02
School 21	20	.67**
School 22	15	.53*
School 23	06	.86*
School 24	19	.46*
School 25	23	.64**
School 26	08	-.22
School 27	16	.56*
School 28	16	.63**
School 29	17	.42
School 30	29	.14
School 31	21	.46*
School 32	17	.52*
School 33	06	.27
School 34	17	.25
School 35	19	.47*
School 36	15	.28
School 37	19	.63**
School 38	25	.67**
School 39	18	.48*
School 40	10	.64*

[a] Number of participating teachers in school
[b] Pearson product moment correlation coefficient
* $p<.05$
** $p<.01$

Table E.4

Summary of Within School Correlation Coefficients for the TSOEA TPSE Subscale and the IPOE for All Schools

School	n[a]	TPSE/IPOE r[b]
School 1	23	.31
School 2	40	.22
School 3	44	.46*
School 4	31	.52**
School 5	22	.30
School 6	13	.36
School 7	19	.56*
School 8	15	.44
School 9	16	.65**
School 10	20	.75**
School 11	28	.45*
School 12	30	.87**
School 13	14	.59
School 14	27	.32
School 15	16	.41
School 16	12	.77**
School 17	14	.20
School 18	19	.60**
School 19	14	.79**

(table continues)

School	n[a]	TPSE/IPOE r[b]
School 20	12	.74**
School 21	20	.52*
School 22	15	.38
School 23	06	.70
School 24	19	.46
School 25	23	.48*
School 26	08	.76*
School 27	16	.80**
School 28	16	.49
School 29	17	.80**
School 30	29	.35
School 31	21	.69**
School 32	17	.42
School 33	06	.26
School 34	17	.49*
School 35	19	.23
School 36	15	.21
School 37	19	.49*
School 38	25	.72**
School 39	18	.45*
School 40	10	.81**

[a] Number of participating teachers in school
[b] Pearson product moment correlation coefficient

Table E.5

Summary of Within School Correlation Coefficients for the TSOEA CPE Subscale and the IPOE for All Schools

School	n[a]	CPE/IPOE r[b]
School 1	23	.28
School 2	40	.14
School 3	44	.32*
School 4	31	.47**
School 5	22	.30
School 6	13	.27
School 7	19	.58*
School 8	15	.36
School 9	16	.51*
School 10	20	.45*
School 11	28	.41*
School 12	30	.75**
School 13	14	.53
School 14	27	.20
School 15	16	.37
School 16	12	.63*
School 17	14	.15
School 18	19	.46*
School 19	14	.71*

(table continues)

School	n[a]	CPE/IPOE r[b]
School 20	12	.74**
School 21	20	.52*
School 22	15	.38
School 23	06	.70
School 24	19	.46
School 25	23	.48*
School 26	08	.76*
School 27	16	.80**
School 28	16	.49
School 29	17	.80**
School 30	29	.35
School 31	21	.69**
School 32	17	.42
School 33	06	.26
School 34	17	.49*
School 35	19	.23
School 36	15	.21
School 37	19	.49*
School 38	25	.72**
School 39	18	.45*
School 40	10	.81**

[a] Number of participating teachers in school
[b] Pearson product moment correlation coefficient
* $p<.05$
** $p<.01$

VITA

Karen Schlatre Loup was born on August 6, 1950, in Baton Rouge, Louisiana. She is a native of Port Allen, Louisiana, and is the daughter of Charles N. Schlatre, Sr. and the late Elaine Caffarel Schlatre. She is the mother of two children, Chad Louis Loup and Ashley Loup Godfrey, and the grandmother of Elizabeth Chandler Godfrey.

Karen is a graduate of Port Allen High School and received a Bachelor of Science Degree in Elementary Education (1973) and a Master in Education in Special Education (1983) from Louisiana State University, Baton Rouge, Louisiana. She received the Dean E.B. Robert (1988) and the Oleson (1992-93) Academic Scholarship Awards from the College of Education, Louisiana State University during her doctoral studies.

Karen was employed as a special education teacher of the hearing impaired at the Louisiana School for the Deaf (1974-1987 and 1989), Baton Rouge, Louisiana. She worked as a graduate research assistant (1987-1988 and 1992-1993) while completing her doctoral degree at Louisiana State University, College of Education, Department of Administrative and Foundational Services and the Division of Continuing Education, Evening School, Baton Rouge, Louisiana. Karen also worked as a full-time research coordinator and supervisor for professional and program development for the Louisiana Teaching Internship and Statewide Teacher Evaluation Projects, College of Education, Louisiana State University from 1989-1991. Most recently, Karen has served as the Educational Services Coordinator for the Adolescent Center, Our Lady of the Lake Regional Medical Center, Baton Rouge, Louisiana.

DOCTORAL EXAMINATION AND DISSERTATION REPORT

Candidate: Karen S. Loup

Major Field: Education

Title of Dissertation: Measuring and Linking School Professional Learning Environment Characteristics, Teacher Self and Organizational Efficacy, Receptivity to Change, and Multiple Indices of School Effectiveness

Approved:

Major Professor and Chairman

Dean of the Graduate School

EXAMINING COMMITTEE:

Date of Examination:

May 9, 1994